

DOCUMENT RESUME

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Long Range Development Plan for Leeward Oahu Community College, Oahu, State of Hawaii.  
Daniel, Mann, Johnson and Mendenhall, Honolulu, Hawaii.

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Numerous graphics are used to illustrate the areas and stages of development of Hawaii's first completely new community college. The unique features of topology and climate are emphasized and integrated into the development of the plan. Specific topics discussed or illustrated include--(1) population distribution, (2) land use, (3) parking and traffic, (4) mechanical, and (5) electrical services. This long range development plan for the Leeward Oahu Community College represents a first step in creating a system of community colleges for the University of Hawaii. (HH)

ED025097

# LONG RANGE DEVELOPMENT PLAN

## LEEWARD OAHU COMM

ED025097

COMMUNITY COLLEGE SYSTEM \*

HONOLULU

EF 001808



ED025097

PLAN

# COMMUNITY COLLEGE

An aerial architectural rendering of a community college campus. The image shows a large, multi-winged building complex with several courtyards and landscaped areas. The building is surrounded by roads and parking lots. The rendering is in a high-contrast, black and white style, typical of mid-20th-century architectural illustrations.

SYSTEM \* UNIVERSITY OF HAWAII  
HONOLULU HAWAII APRIL 1966

DMJM



DANIEL, MANN, JOHNSON, & MENDENHALL

21 April 1966

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Dr. Richard H. Kosaki  
Vice President  
University of Hawaii  
Honolulu, Hawaii

Dear Dr. Kosaki:

The following Master Plan Report for the Leeward Oahu Community College represents the completion of an exciting first step in creating a significant community college system as part of the University of Hawaii.

The implementation of the plan will provide added comprehensive educational opportunities for the citizens of the State and community, who will attend the college.

We of Daniel, Mann, Johnson, & Mendenhall wish to thank you, Mr. Mogi and others of the University and State Agencies who were so helpful in providing us with the necessary information and advice which was so vital in shaping the plan.

Sincerely yours,

DANIEL, MANN, JOHNSON, & MENDENHALL

Stanley M. Smith, A.I.A.  
Vice President

SMS/g



U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE  
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LONG RANGE DEVELOPMENT PLAN  
LEEWARD OAHU COMMUNITY COLLEGE  
OAHU, STATE OF HAWAII

Prepared for

The Community College System  
University of Hawaii  
State of Hawaii

April 1966

DANIEL, MANN, JOHNSON, & MENDENHALL  
Planning . Architecture . Engineering . Systems



## FOREWORD

Five community colleges in the State of Hawaii are in various stages of planning. Four of them are to be built upon the present foundations of existing technical schools. Only one -- that in Leeward Oahu -- is an entirely new college.

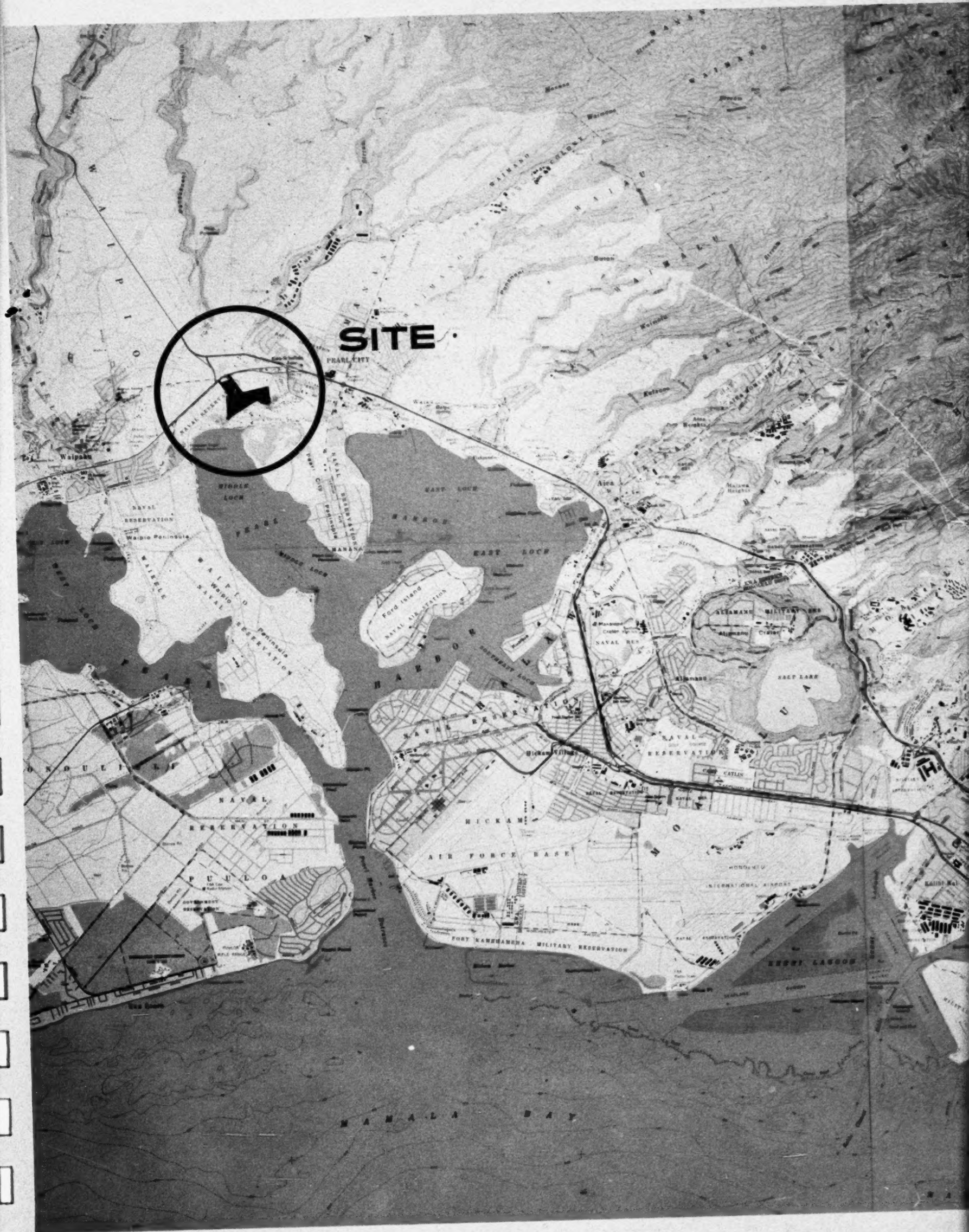
As an entirely new campus, scheduled to receive its first students in the Fall of 1968, the Leeward Oahu Community College is of special significance to the people of Hawaii. It dramatically symbolizes the State's commitment to enlarge educational opportunities: community college operations are new to Hawaii, and Leeward Oahu, the fastest growing area in the State, has hitherto had no higher education facility to serve it.

Planning a new campus, without a faculty or tradition, has its advantages and disadvantages. We called upon experienced hands for assistance. President Robert E. Swenson of Cabrillo College, Aptos, California, helped us outline the educational specifications. The planning and architectural firm of Daniel, Mann, Johnson, & Mendenhall of Los Angeles, was selected to develop the Master Plan.

Extensive knowledge of and experience with educational requirements are reflected in this Master Plan. At the same time, DMJM has surmounted the disadvantage of hidebound tradition by suggesting the bold, new look of a concentrated physical plant interspersed with tropical gardens. It symbolizes well the educational aspirations of the new State of Hawaii.

Richard H. Kosaki  
Vice President for  
Community Colleges  
University of Hawaii









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# **I      INTRODUCTION**

## I INTRODUCTION

In September, 1965, the University of Hawaii retained the firm of Daniel, Mann, Johnson, & Mendenhall for the preparation of the Long Range Development Plan for Leeward Oahu Community College Campus, the first completely new community college for Hawaii's system.

The college, located on a site overlooking Pearl Harbor, plans to open in the fall of 1968 with a fully comprehensive program for its initial student body. Based on the Educational Specifications, prepared in August, 1965, it is planned that an ultimate campus accommodate effectively a student enrollment of 5000.

This Report, and the accompanying graphic materials, set forth the objectives to be attained. Through logical planning and analysis, it provides the guidance and direction to implement the full development of the plan, assuring an educational facility which will not only fulfill the immediate needs of student and community, but, by planning for an orderly growth, anticipates those of the future.



## **II      PLANNING      OBJECTIVES**







**5000 FTE**



## II PLANNING OBJECTIVES

### A. EDUCATIONAL CRITERIA

#### Emphasis

To serve effectively the diverse student population of the Leeward Oahu region, the College is planning to open its campus in the fall of 1968 with a comprehensive program operating within the framework of these major objectives.

Guidance. A program of counseling, testing and orientation is designed to help students "find themselves." Professional assistance is available to students who seek to discover their aptitudes, clarify their goals, and where necessary, remove academic deficiencies.

General Education. Designated courses may be required by State decision or college determination when deemed essential to the welfare of all students. Both formal and informal learning opportunities are provided to enhance understanding and appreciation of the cultural heritage as well as to further the goal of responsible citizenship in a democratic society.

College Transfer. Courses parallel and equivalent to the basic freshman and sophomore requirements at the State University.

Occupational Training. A vocational program to provide a broad scope for post-high school occupational education with equal emphasis in terms of co-curricular experience.

Continuing Education. To meet the changing needs of individuals and communities, representative cultural and vocational subjects are available as determined by public interest and support. This work is essentially non-credit in character, offered at hours convenient to the students enrolled, as extended day or evening programs.



Emphasis is not only in creating an environment for academic learning and campus life, but also in creating a center of cultural life for the surrounding community.

### Enrollment

Because the establishment of a community college system is recent, data to project a future growth pattern have not been developed with substantive accuracy. The following projections for day program enrollments were prepared in December, 1965, by the Institutional Research Committee of the University of Hawaii, and are felt to be reasonable as a reference guide.

| <u>College Year</u> | <u>Day Students</u> |
|---------------------|---------------------|
| 1968-69             | 687                 |
| 1969-70             | 1204                |
| 1970-71             | 1528                |
| 1971-72             | 1902                |
| 1972-73             | 2312                |
| 1973-74             | 2680                |
| 1974-75             | 3129                |
| 1975-76             | 3742                |

### Curriculum

The primary basis for the planning and design of this Campus originated with the Educational Specifications prepared by Dr. Robert E. Swenson, Consultant, in August, 1965. These Specifications provided the space allocations necessary to offer a comprehensive program for each of three phases of campus development for full-time equivalent students (FTE).

|                        |          |
|------------------------|----------|
| Initial Development    | 2000 FTE |
| Intermediate Expansion | 3500 FTE |
| Ultimate Development   | 5000 FTE |

## B. PRINCIPLES OF PHYSICAL PLANNING

### General Considerations

Good campus organization will make provision for: (1) Economy of construction, operation and maintenance; (2) Safety and convenience in operation and use; (3) Attractiveness in appearance; (4) Proper grouping of facilities in order that each unit can best serve its purposes in the educational program; and (5) Intelligent and foresighted provision for orderly future growth.

### Economy of Construction Operation and Maintenance

Site development with economy in mind will find many ways of saving money without impairing the safety, usefulness, or aesthetic values of the Campus. Savings may be effected not only in the original cost of the development, but also, and equally as important, may be realized over the years by providing techniques that consider operation and maintenance.

Building placement is governed by proper consideration of excavation and drainage problems as well as aesthetics, avoiding special foundation conditions and long utility extensions. Erosion control and drainage structures serve to minimize ground maintenance.

### Safety and Convenience

A site developed with safety and convenience in mind will locate service drives near those points to which deliveries must be made. In the development of roads on the site, care is taken to eliminate as much of the pedestrian-auto conflict as possible. When students can walk between the buildings on the campus without crossing a vehicular means, excellent circulation has been accomplished. The intent is the development of a pedestrian campus with vehicular penetration limited to essential delivery and emergency traffic.



Distinct and related educational divisions are organized into identifiable units or building groups, which provide useful functional areas for related student activities and circulation, and as unifying design elements. Isolation of academic and non-academic areas is avoided.

### Attractiveness in Appearance

Form of architecture, placement and relationship of buildings, drives, parking areas, and physical education fields all contribute to the aesthetic value of site development.

In addition, planting receives proper consideration from the early stages of planning. It is approached from the standpoint of utility as well as aesthetics, with both initial cost and maintenance kept in mind. Plantings can be beautiful, but at the same time prevent soil erosion; they can form an attractive setting for the Humanities Center, and yet serve as a screen for a storage area. In like manner, plantings serve as windbreaks on windy days, and protection from the sun during warm weather.

A system of pedestrian circulation, leading to open spaces, is planned to relate and unify campus buildings. Landscaping is planned to give definition and character to open spaces making them useful for both recreational and study purposes, and to preserve and enhance existing vistas.

The plan for the Campus development is designed to emphasize the beauty of the site and at the same time achieve efficient layout of the various facilities. Building spaces are organized and planned in elements that can retain a personal scale.

The total Campus is regarded, in concept, as a regional community center.

## Proper Grouping of Facilities

A well-planned college campus has two principal areas for activity. The Main Campus or Academic area, and the Student Activity area.

### Academic Area

This area includes the classrooms, laboratories, library, administration and counseling offices, and staff facilities. It is in the most quiet environment of the Campus.

Since instruction depends to a great extent on the Library, its location is of prime importance. It is logically in a central location; the right atmosphere for study and learning must be present. It is easily and directly accessible to the students and staff, and so planned that the majority of the students pass in close proximity to it as they circulate through the various areas of the Campus. Because the Campus is programmed for a phased development, it is reasonable to consider this key facility with the first stage of building. The space planned for ultimate use, but not required at first phase, will be allocated for classroom and administrative needs. These will be relocated to permanent facilities as Campus expansion occurs.

The Administrative and Counseling Offices are conveniently located for easy access by students and the public.

Humanities and Arts are divided into distinct buildings, or building groups, to achieve desirable relationships to the Drama-Arts Center, and to principal approach ways. It is desirable for Music and Art to preserve a ready relationship to staging facilities. The theatre areas are considered for public function as well as for student function for large group instruction.



The Science Laboratories are located in the same building complex. This close association will provide savings in utilities and storage space and offer better joint usage of equipment.

#### Student Activity Area

This area includes the student center, with its meeting rooms and food preparation facilities; it functions to unite the various elements of the student body and contributes much to student morale; it is a particularly important locale, since most of the informal student gatherings which contribute to campus experiences take place here.

Besides this more concentrated gathering area, consideration is given to planning for lesser, decentralized student gathering areas that relate more to the main campus functions.

The architectural character of this area is extremely important. The keynote is one of friendliness and informality.

The Student Center, being the focal point of social life and activities, is centrally located with reference to student traffic. It is also in proximity to the buildings of the Campus used by community groups, and adjacent to the major circulation serving the physical education facilities.

The Gymnasium and other Physical Education facilities are related as efficiently as possible to public access. At the same time, distances from the academic area are such that students may travel them in the normal passing time between classes.

### Parking

Parking for the public, the staff and the students (both day and evening) are located as near those facilities of the Campus which are most frequently used by these groups. It is also desirable to locate parking areas to the perimeter of the site, decentralizing them into several units to avoid a mass of cars, and to minimize traffic congestion. The parking areas will be properly landscaped and not placed where they would obscure the view of the Campus.

In the interest of reducing masses of surface parking, serious consideration is given to planning for multi-level parking structures.

### Future Expansion

The Master Plan for the ultimate Campus development anticipates expansion in such a manner that future construction operations will interfere least with normal campus activity. Expansion occurs from the periphery of the initial campus into a cohesive final relationship of buildings to the total site. It is the intent that the Campus provide for an ultimate enrollment of 5000 students, however, it should be recognized that the future can bring demands that may increase the capacity beyond this, with a resultant need for additional facilities. A direction for this eventual possibility has been kept in mind during development of the Master Plan.

### Defined Functions for Activity Grouping

In establishing the initial approach for planning the new Campus, certain basic activities occur within the framework of the Educational Program. The following offers a breakdown of essential areas for purposes of determining the identity for the programmed space allocations. During the several phases of planning development, it may be that certain of the areas will better relate to functions other than contained by the following grouping and will be redefined to answer specific educational needs.



Administration

Administration Services  
Business Services  
Student Services

Library

Library Services  
Audio-Visual Services  
Staff Work and Preparation Areas

Humanities

Language Arts  
Social Sciences

Science-Mathematics

Fine Arts

Arts & Crafts  
Music  
Drama

Applied Arts

Business Education  
Home Economics  
Engineering & Technology

Physical Education

Student Center

Student Business and Store  
Food Services

External Use Functions

Instructional  
Assembly and Gathering  
Physical Education  
Pedestrian Circulation  
Vehicular Circulation

Maintenance & Operations

### Architectural Character

The architectural character of the new campus must reflect, by quiet refinement, the expression of its purpose. Achievement of this identity will originate from the spatial organization, proportions, scale, and forms, as well as the choice of materials, colors and textures used for the design, keeping in mind the traditional heritage of the area.

The educational offerings are tendered to a large number of people with a broad spectrum of purposes, and they must serve the changing needs of the community. The Architectural solution of the College must be planned to provide the optimum degree of flexibility and adaptability to meet new conditions and evolving educational programs and methods by taking full advantage of the best in educational planning philosophy.

The environmental quality sought in the design must combine a dignity and maturity together with an atmosphere of friendly informality, where students will feel at ease as they seriously and responsibly pursue their education. The architectural setting must foster easy contact between student and staff. Extremes of ponderous monumentality or impermanent flimsiness must be avoided. In this way can the architecture lend the most to a feeling of respect and purpose.



### **III PROGRAM ANALYSIS**

### III PROGRAM ANALYSIS

#### A. THE SITE

##### Basic Data

Site selection required a thorough and deliberate study of the basic factors essential to the proper development of the new College program. Of initial importance was a review of population centers and area growth; economics of site improvement which involved topography, utilities, and traffic access; site size and proportions that would permit a logical solution for the present program as well as provide for an orderly future growth.

Reference should be made to the "Land Requirement Study for Leeward Oahu Community College," prepared by Daniel, Mann, Johnson, & Mendenhall in October, 1965.

##### Description

The site, consisting of four parcels of Federal surplus property totaling approximately 79 usable acres, is located on the south side of Kamehameha Highway at its junction with Farrington Highway.

Of the four parcels, only Parcel 1, as identified in the Land Requirement Study, is available for immediate development. Initial planning has been limited, for its first phase, to Parcel 1, with the intent that as enrollment increases and campus expansion is required, acquisition of the additional parcels will occur. The securing of Parcel 4 will require provisions for relocation of Navy drum storage facilities.

The topography of a large portion of the total site is mildly sloping, rising toward the north with elevations ranging from 30 to 90 feet. The southern, or lower, portion of the campus being, in greater proportion, the most level, is considered best suited for physical education activities. The remainder of



the site, rising and becoming level at the higher elevation will permit an upper campus development commanding a magnificent view of Pearl Harbor.

To the east and south of the site the ground surface drops off sharply to Waiawa Stream, and swamp land. The land, presently covered with brush and sugar cane, maintains a natural surface run-off pattern toward Pearl Harbor to the south.

The lands surrounding the Campus, presently predominantly vacant, anticipate a future development primarily residential.

#### Traffic Access and Generation

Farrington Highway is presently the major route to the proposed campus, running adjacent to a portion of the northern boundary. Access to the Campus proper is now essentially non-existent. Present planning by the Department of Transportation is providing for the redevelopment of Farrington Highway and the construction of two Interstate Highways to the north of the Campus. It is reasonable to consider primary access to the campus will be along the northern boundary.

The proposed traffic patterns and vehicular generation data are depicted in Part IV of this report.

#### Climate

Probably the most unique feature in climate is that of the prevailing Trade Winds. Along with the vistas afforded by site orientation, these winds can be considered as "natural resources." Planning will exploit and preserve these resources by allowing penetration of the Trade Winds through the Campus while providing protection from the storm winds; by affording shelter from the frequent rains; by providing an environment most suitable to learning endeavor during periods of discomforting humidity.

## Weather Data

The following is provided by the U. S. Weather Bureau:

### Rainfall

|                  |           |
|------------------|-----------|
| 30 year average: | 26 inches |
| 30 year maximum: | 50 inches |
| 24-hour maximum: | 13.5 in.  |

### Relative Humidity (16 year average)

|         |     |
|---------|-----|
| 2 a. m. | 76% |
| 8 a. m. | 73% |
| 2 p. m. | 58% |
| 8 p. m. | 71% |

### Wind

|                              |          |
|------------------------------|----------|
| 15 year mean annual velocity | 11.8 mph |
| 15 year maximum velocity     | 67 mph   |
| Prevailing winds             | E-NE     |

### Sunshine

|                  |               |          |
|------------------|---------------|----------|
| 15 year average: | Clear         | 96 days  |
|                  | Partly Cloudy | 170 days |
|                  | Cloudy        | 99 days  |

12 year average: 70% sunshine -- sunrise to sunset.

## Soils

Knowledge of the area indicated that the major portion of the site is underlain by firm, clayey soils of old alluvium and that portions of the low areas to the east and south are underlain by soft materials of recent deposition.

Prior to proceeding with foundation engineering of the proposed planning work, it will be necessary to obtain accurate information regarding the subsurface structure of the site soils in areas where buildings are to be located.

## Utilities

No services exist, within the immediate area of the site, that are adequate for the proposed Campus development.



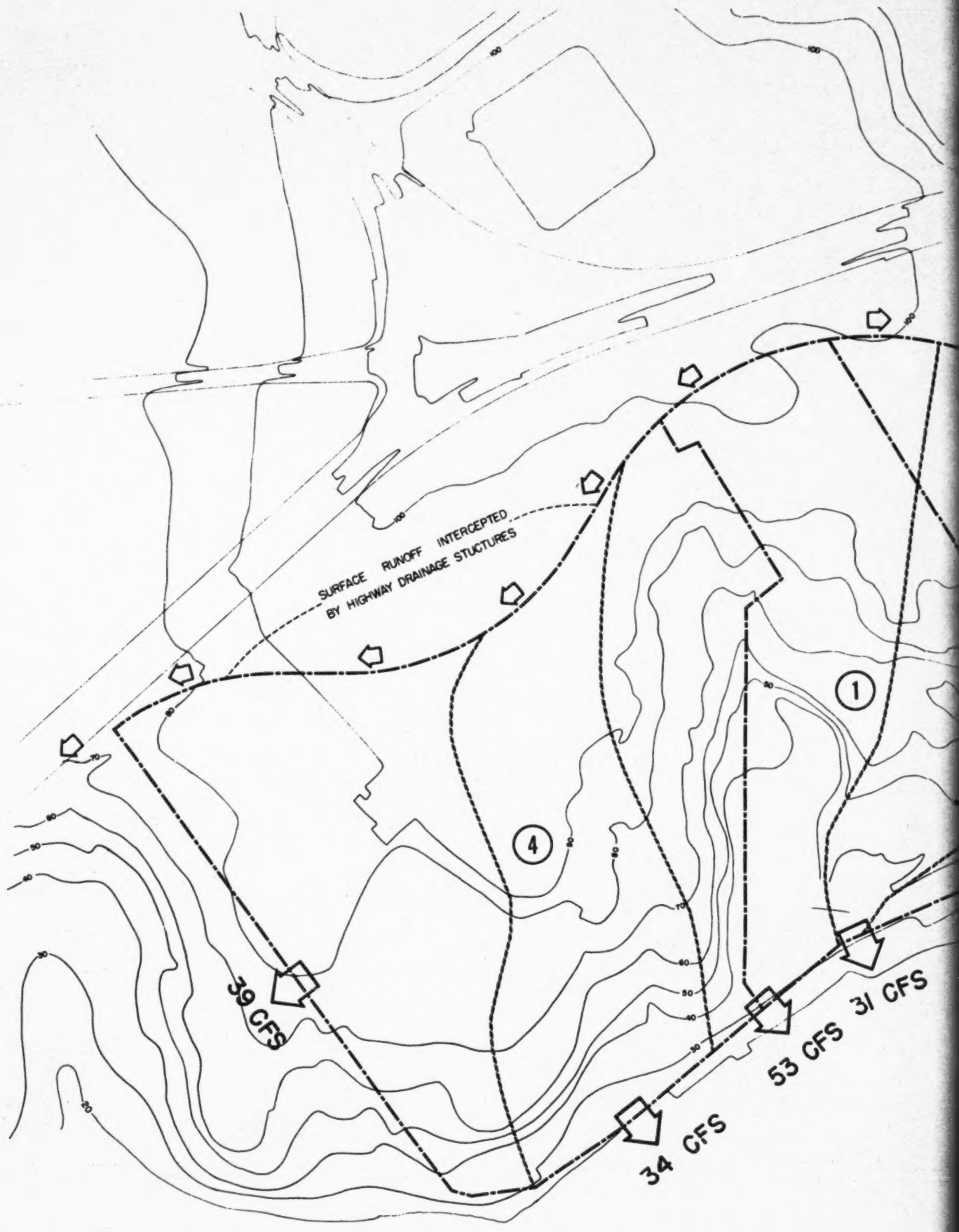
The following maps support this portion of the report:

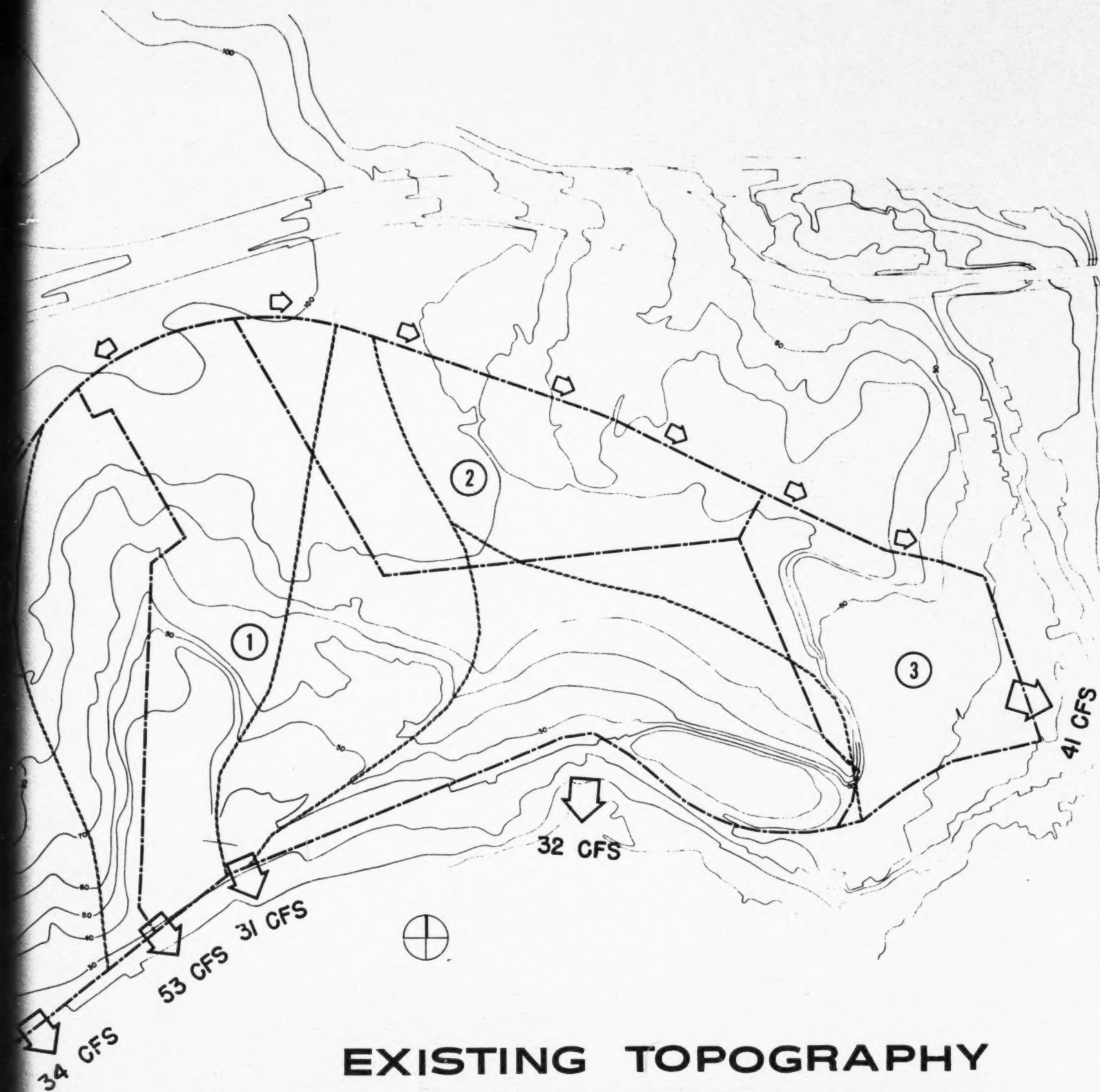
Topography and Surface Run-off

Accessed Land Valuation

Population Distribution

Existing Land Use





## EXISTING TOPOGRAPHY AND SURFACE RUNOFF

SOURCE TOPOGRAPHY R M TOWILL  
RUNOFF QUANTITIES D M J M

0 500 1000 2000





DOLLAR SQUARE FOOT

0.03 - 0.05

0.05 - 0.07

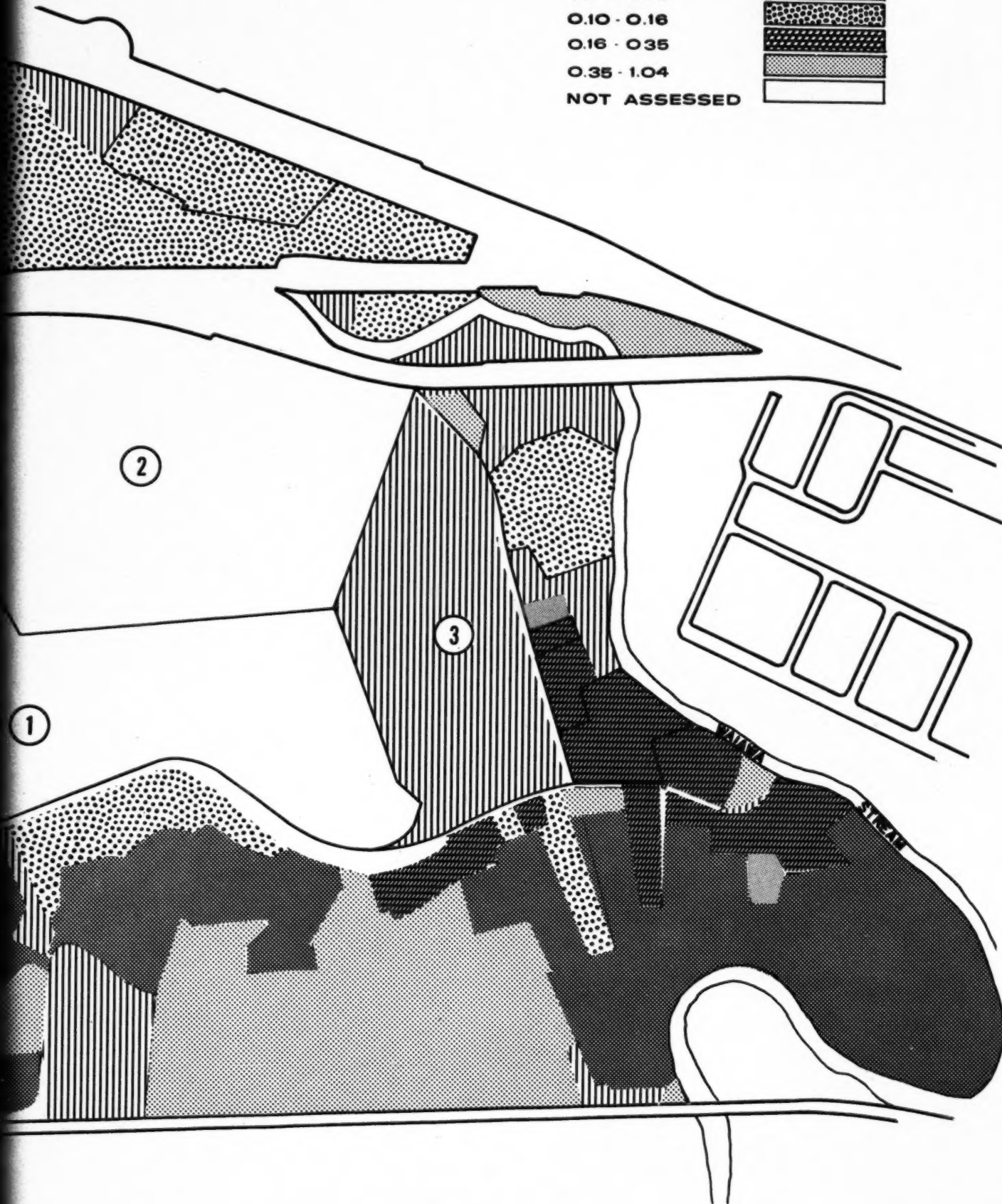
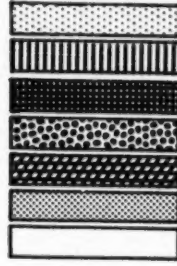
0.07 - 0.10

0.10 - 0.16

0.16 - 0.35

0.35 - 1.04

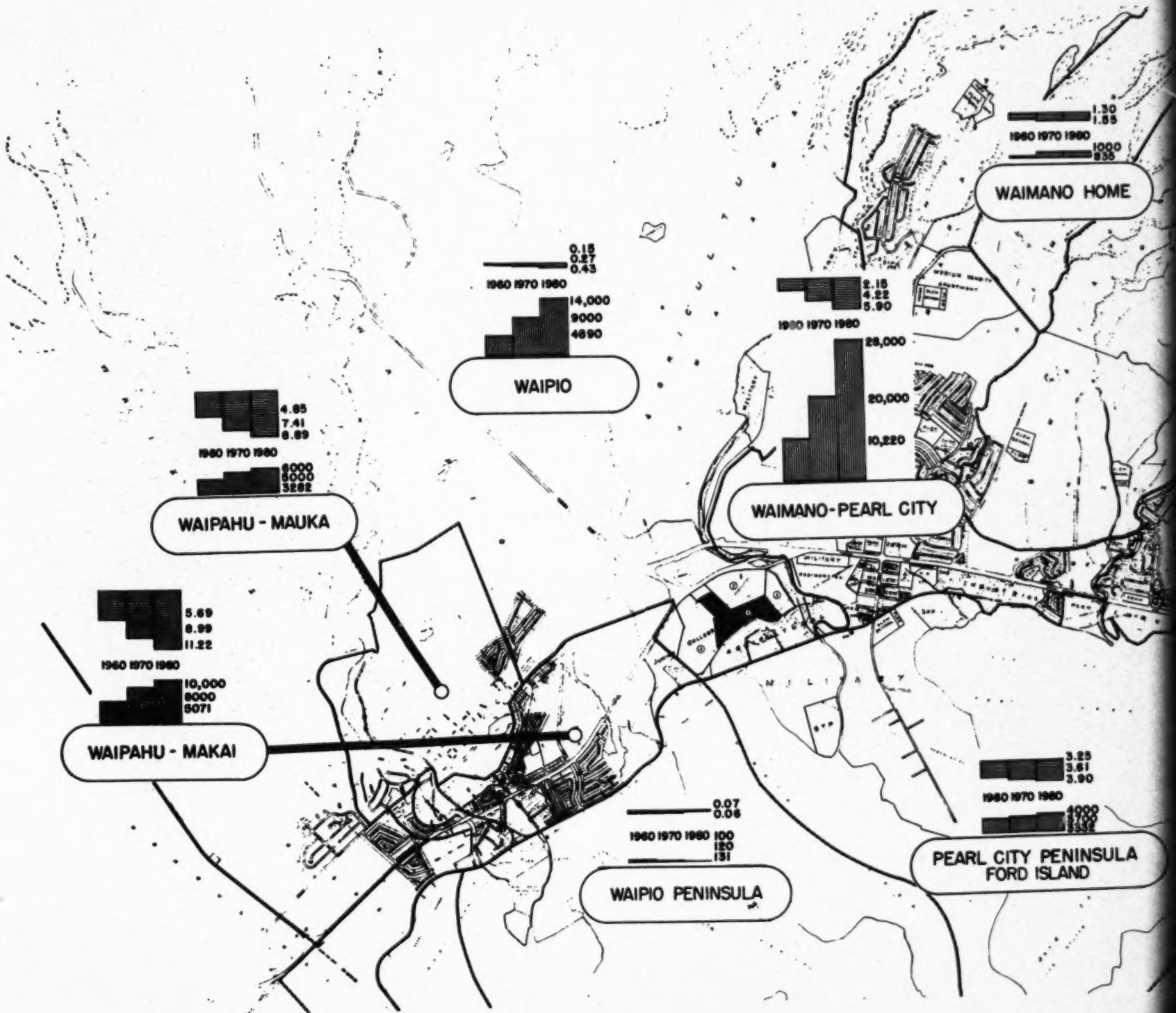
NOT ASSESSED



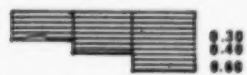
# ASSESSED LAND VALUATION

SOURCE STATE TAXIATION 1965







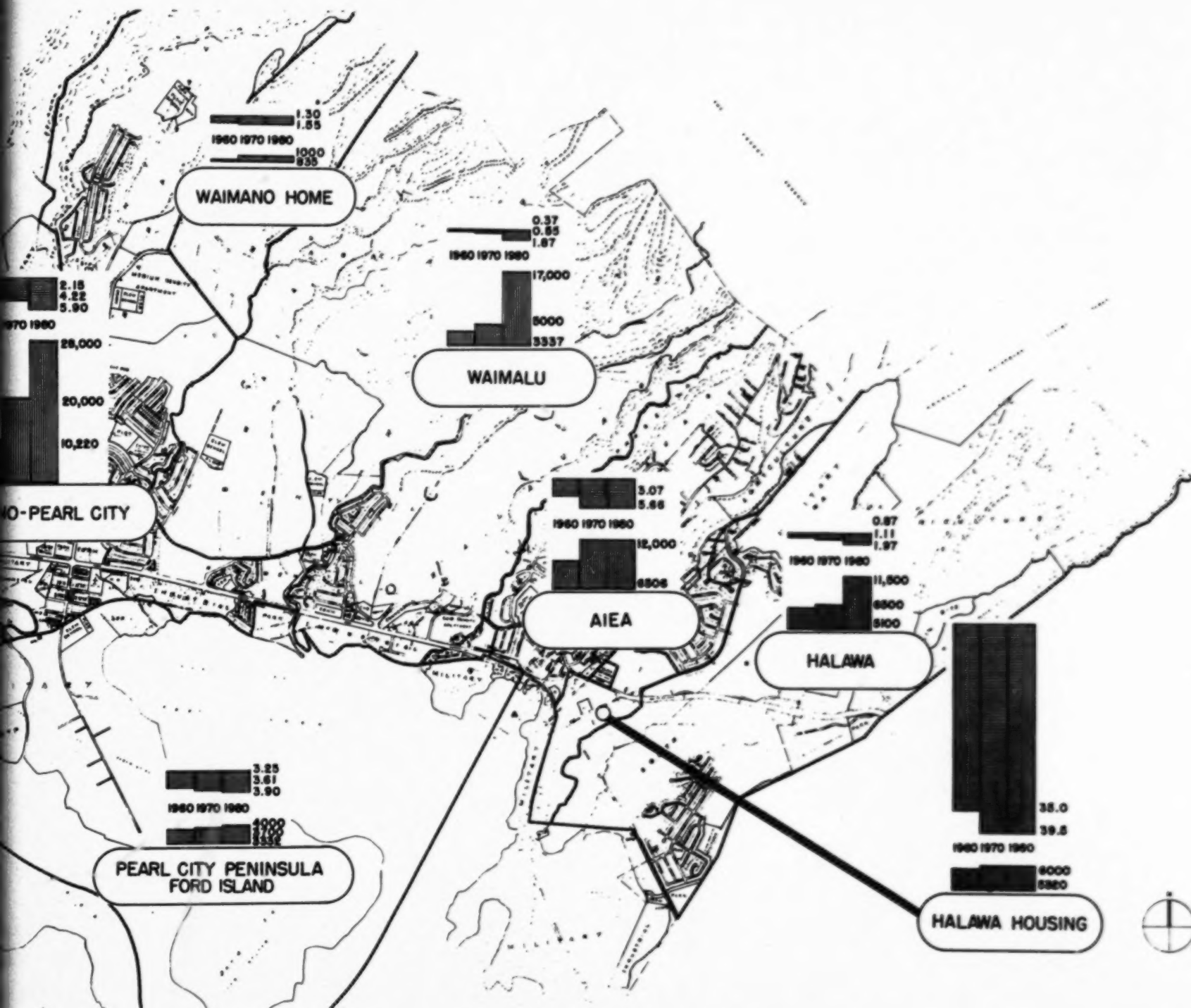


POPULATION DENSITY  
PERSONS PER ACRE

1960 1970 1980



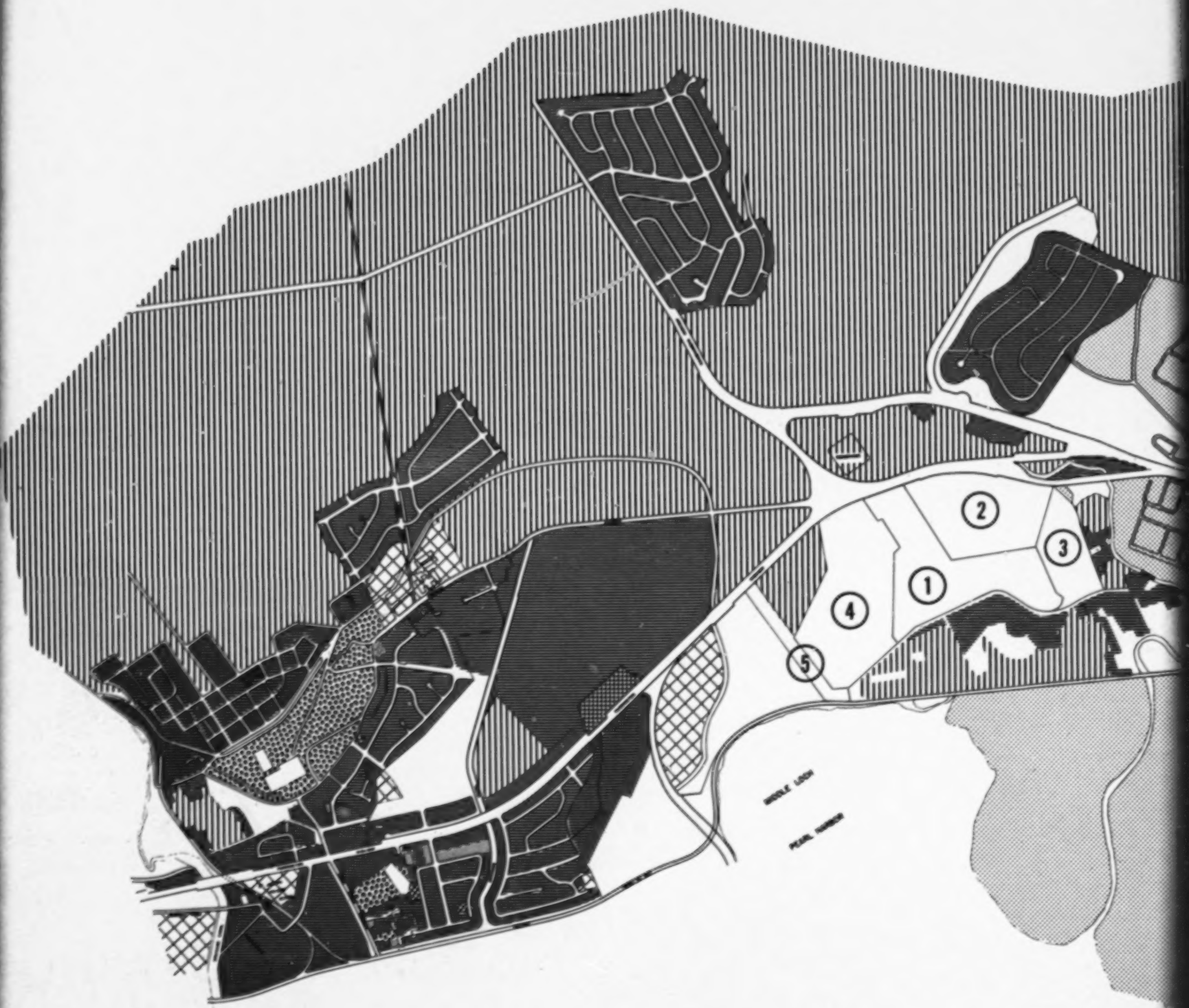
POPULATION



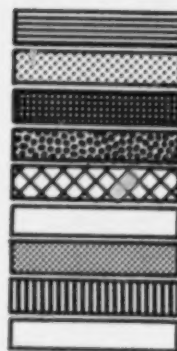
# POPULATION DISTRIBUTION

SOURCE: 1960- POPULATION U.S. CENSUS

1970-1980 POPULATION PROJECTION D.M.J.M.



SINGLE FAMILY RESIDENTIAL  
 MULTIPLE FAMILY RESIDENTIAL  
 GENERAL COMMERCIAL  
 INDUSTRIAL  
 PUBLIC FACILITIES  
 QUASI PUBLIC FACILITIES  
 MILITARY  
 AGRICULTURE  
 VACANCY



# GENERALIZED EXISTING LAND USE

SOURCE: PLANNING DEPT. CITY & COUNTY OF HONOLULU  
 SURVEY: D.M.J.M.



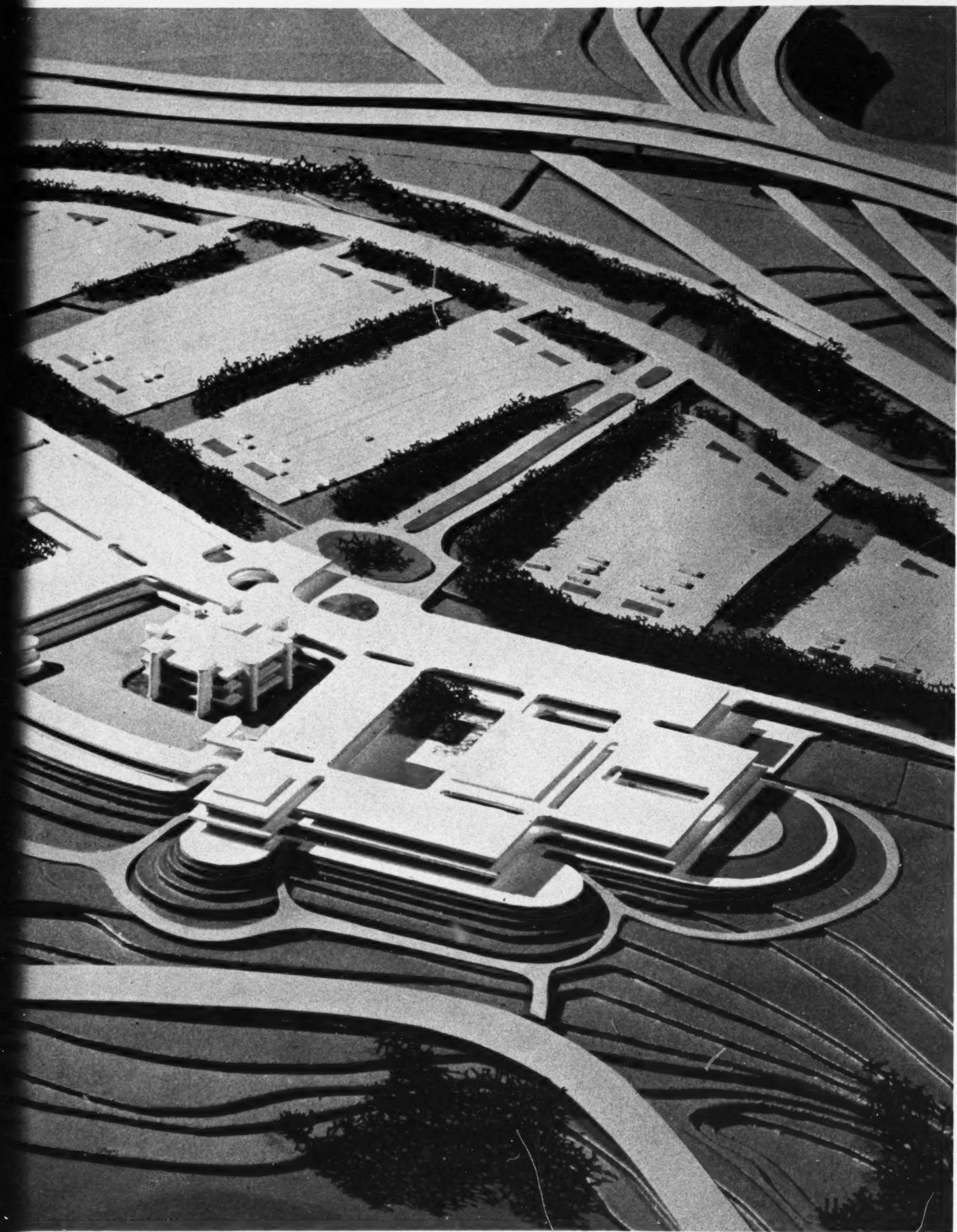
WIDE LOOK  
 PEARL HARBOR



## **IV DEVELOPMENT PLAN**







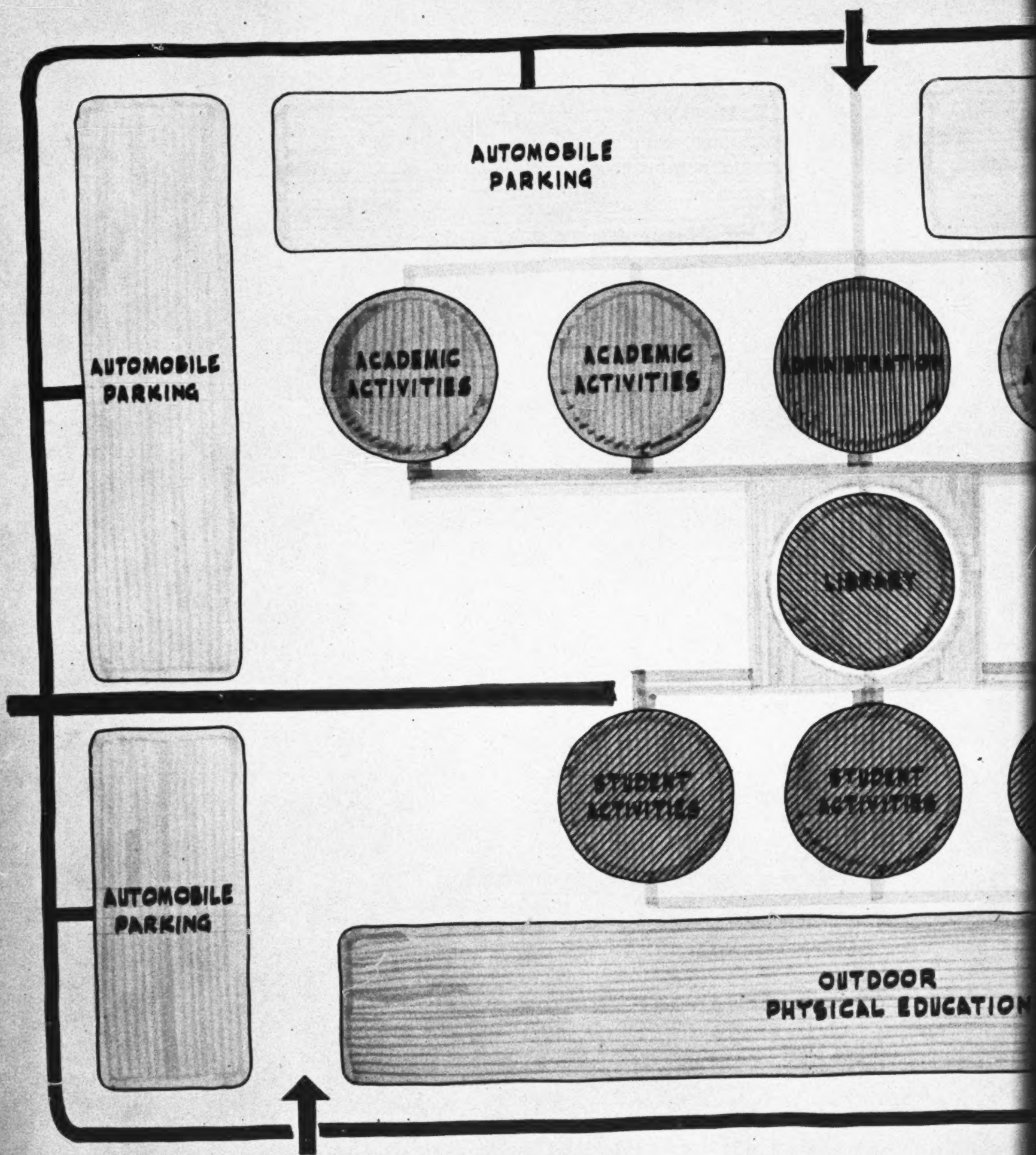


#### IV THE DEVELOPMENT PLAN

##### A. FUNCTIONAL RELATIONSHIPS

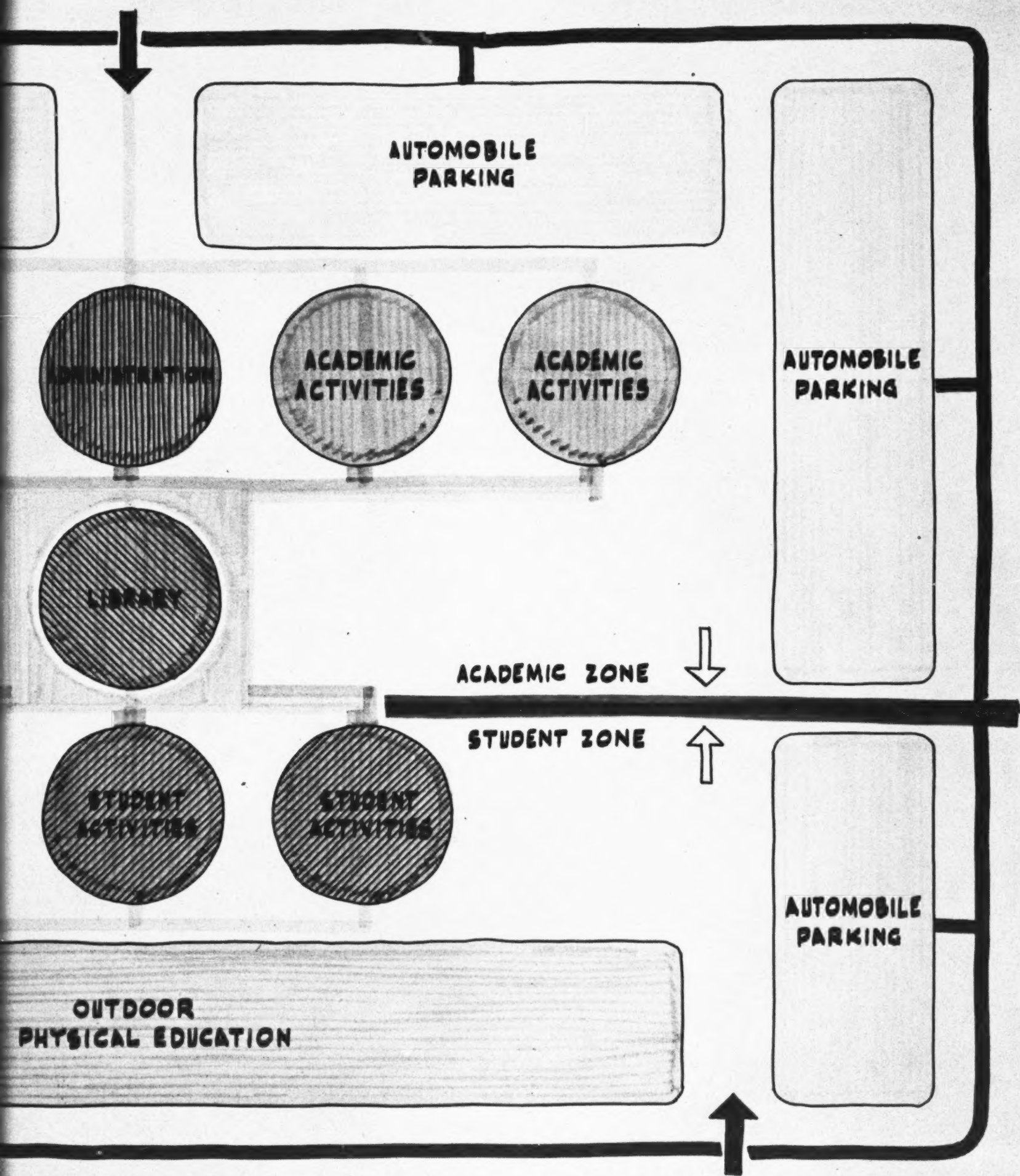
The accompanying diagram portrays, in an abstract manner and without reference to scale, site or architectural character, the major functions required within the site.

These functions illustrate the initial approach to planning in which the several activities are represented showing objectives desired in terms of relationships of building, pedestrian and vehicular traffic, and parking areas which are the integral part of the planning problem and its solution.



ABS





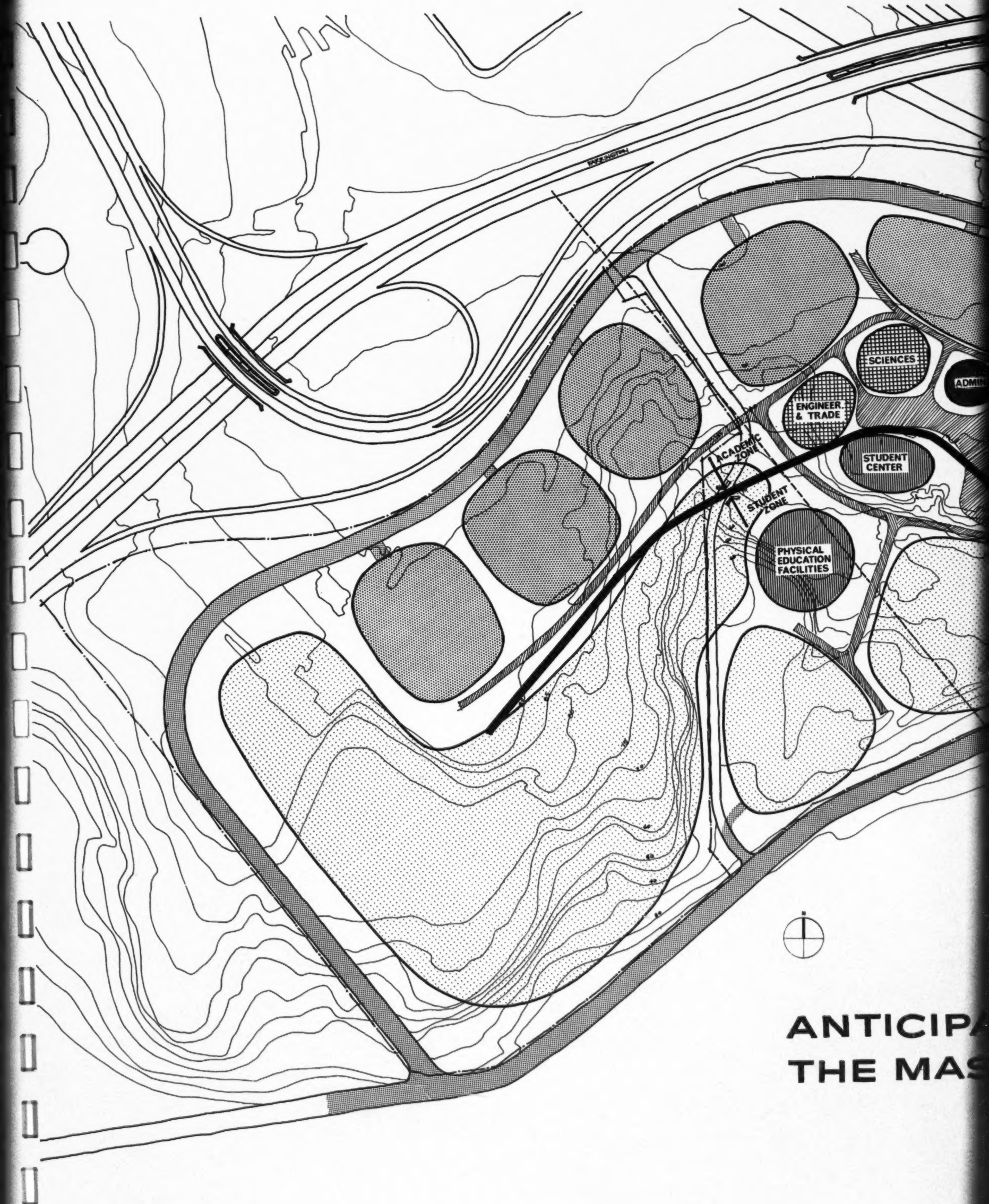
**ABSTRACT SITE RELATIONSHIPS**



B. LAND USE CONCEPT

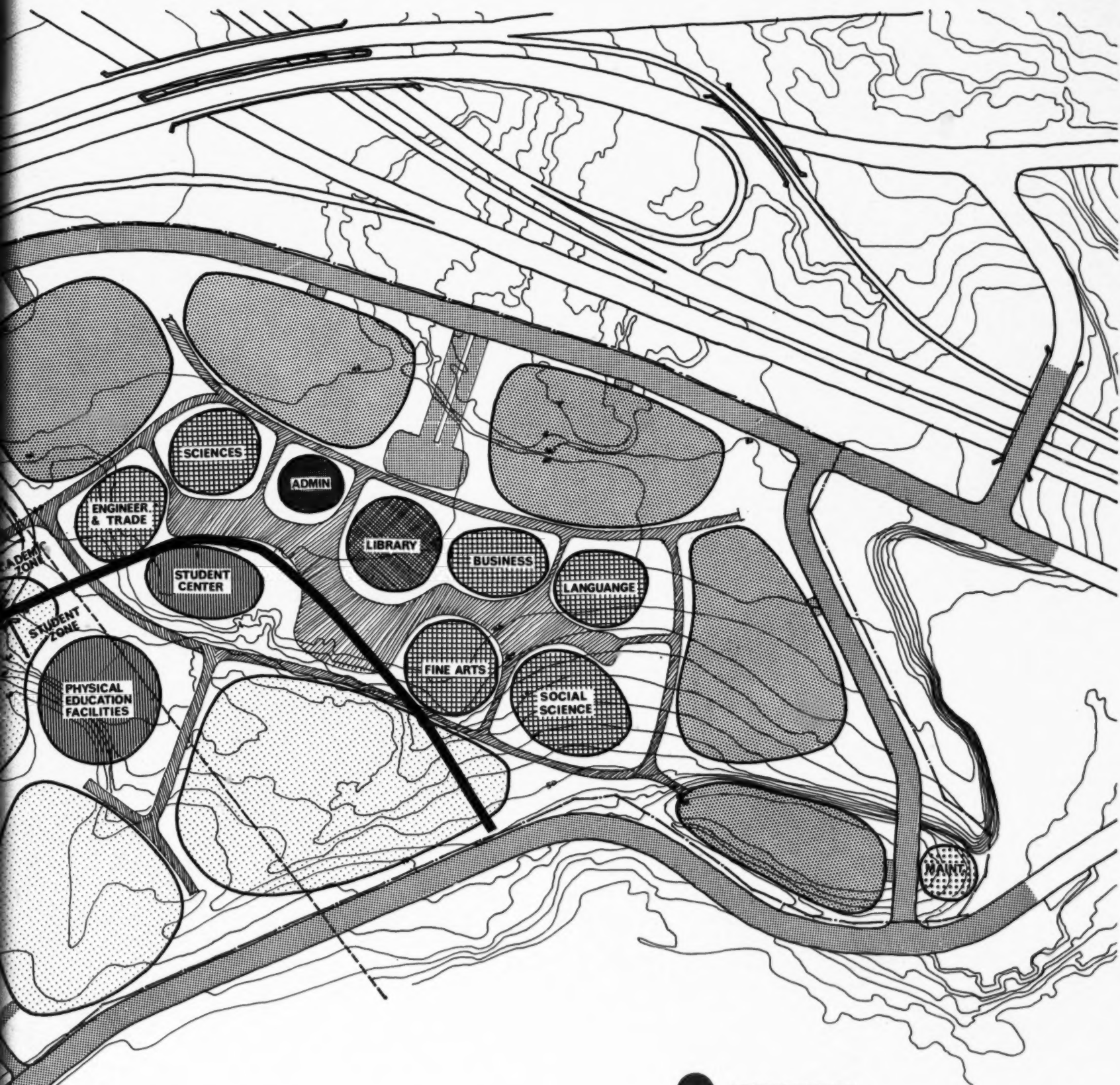
In anticipating the Long Range Development Plan, the accompanying diagram superimposes the abstract functional objectives, shown in the previous study, upon a scaled outline of the property to be utilized.

The several activities, still in abstract form, but more defined in function, are related more realistically so as to result in a preliminary indication of areas within the property most suitably located for the various needs of development.



ANTICIPATE  
THE MASS





# **ANTICIPATING THE MASTER PLAN**

-  ADMINISTRATION
-  ACADEMIC ACTIVITIES
-  LIBRARY
-  STUDENT ACTIVITIES & P.E.
-  PEDESTRIAN CIRCULATION
-  OUTDOOR P.E. FACILITIES
-  AUTOMOBILE PARKING & CIRCULATION



C. BUILDING SPACE REQUIREMENTS

The following allocation represents the total gross building area requirements at each incremental phasing of campus development as derived from the Educational Specifications, prepared in August 1965.

| <u>Facility</u>                                | <u>Initial<br/>Development</u><br>2000 FTE | <u>Intermediate<br/>Expansion</u><br>3500 FTE | <u>Ultimate<br/>Development</u><br>5000 FTE |
|------------------------------------------------|--------------------------------------------|-----------------------------------------------|---------------------------------------------|
| Languages                                      | 16,900                                     | 27,060                                        | 37,220                                      |
| Fine Arts                                      | 10,180                                     | 36,610                                        | 63,040                                      |
| Business                                       | 12,400                                     | 20,910                                        | 29,420                                      |
| Social Sciences                                | 10,850                                     | 19,620                                        | 28,380                                      |
| Sciences                                       | 31,870                                     | 40,320                                        | 48,770                                      |
| Engineering & Technical<br>Trades              | 31,870                                     | 48,580                                        | 65,280                                      |
| Physical Education                             | 8,670                                      | 40,670                                        | 72,670                                      |
| Library                                        | 24,000                                     | 32,000                                        | 41,000                                      |
| Administration                                 | 8,000                                      | 11,200                                        | 16,000                                      |
| Student Center                                 | 16,000                                     | 16,000                                        | 32,000                                      |
| Maintenance & Operations                       | <u>8,000</u>                               | <u>8,000</u>                                  | <u>8,000</u>                                |
| <br><u>Total Gross Area in<br/>Square Feet</u> | <br>178,740                                | <br>300,970                                   | <br>441,780                                 |

#### D. THE RECOMMENDED PLAN

##### Basis for Design

Formulating the previously stated planning criteria and analysis has provided a thorough and penetrating understanding for the development of an optimum planning solution for the Leeward Campus.

From these data have appeared four major guiding factors that have exerted the most important and fundamental influence on the form of the plan.

##### One: Program

The grouping of Instructional Spaces so as to relate in function while defined with recognizable identities.

The recognition of the need for incremental development so as to avoid, as much as possible, interruption of campus activities during expansion. As the campus experiences growth, it will develop outward from an initial core origin.

A clearly organized academic and non-academic space definition, such as physical education, outdoor assembly or gathering, academic and occupational area so as to maintain a cohesive relationship within the campus.

The location of the noisier activity spaces at peripheries where they do not interfere with the quiet areas yet will retain sound campus relationship. These include such programs as music, technical trades, and physical education.

The placement of the Library at the academic center of the campus and in relationship to this center, the administration and student center. Recognizing that these are diverse functions which together command the needs of a large portion of student population, directed the planning for a central campus feature -- The Great Court.

Two: Site

The placement of buildings on the higher portions of the site where best advantages of topography, drainage, climate and view, and facility utilization can be exploited. Physical education fields and courts are located on the lower portion of the site where a greater proportion of flat land occurs.

The provision for well-defined distribution of traffic and parking. Vehicular traffic is not allowed to penetrate the campus except for service and emergency. Parking is immediately adjacent the college facilities, and placed so traffic gains access from the closest arterial carrier, and is distributed on the site so as to relate, as inconspicuously as possible, to the facilities for student, staff, visitors and general community needs.

Three: Climate

The influences of a unique climate demand that the plan must respect and exploit its presence by inviting it through its structure, yet affording protection during its more severe moments.

The development of a campus incorporating a pattern of pedestrian walkways that may occur through open spaces and courts, or may be protected by cover, while performing their function of unifying the relationships of the plan.

The landscaping, an integral part of the climate, should flow through the campus so as to give definition and character to the open spaces. It must become an important part of the physical environment by adding purpose and a softening refinement to the architectural needs of the plan.

The irregular confinement of the site and the limitations placed on the plan by both topography and size, gave direction to compactness of facilities rather than to an expanded system of individual buildings. This has become a unifying element, important in campus planning. By providing closer physical placement of related disciplines, minimum distances for student travel is achieved.



#### Four: Cost

This is the underlying consideration which must be constantly in analysis throughout the process of planning.

The development of a compact structure and compact grouping of buildings offers important economies in construction by continuity of structure and minimum distances for utilities and service, and in the future use will provide savings in maintenance and operation.

In evolving these guiding factors, it became apparent that these particular circumstances demanded a unique and individual solution.

The plan, in its final solution, is defined as a "Shelter Concept" by which individual buildings are compactly brought together and physically connected by the shelter of an extension of their individual roof overhangs. By this means is achieved a unity of structure and a continuity in space-use relationships.

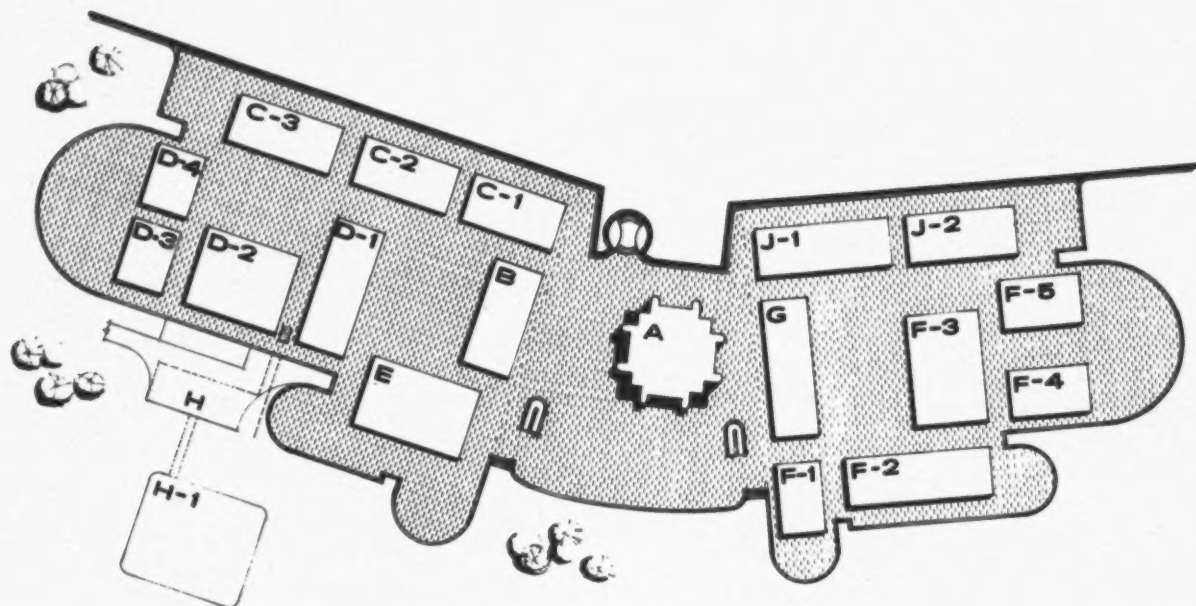
Each unit is inter-connected by its structure, yet they invite and enhance the environment, both horizontally and vertically, by penetration along the courts and open spaces, and by the openings formed in the roof decks at various points where openness is required to capture the feeling of the climate.

The library, forming the cohesive core of the campus, rises three stories out of the Great Court. Connecting this feature by shelter, and extending in opposite directions from the Great Court, are the instructional spaces, two stories in height -- lower in order not to dominate the library, yet providing the vertical planning necessary to answer the related needs of the program.

The following pages show the plan in its ultimate development for the accommodation of 5000 students.

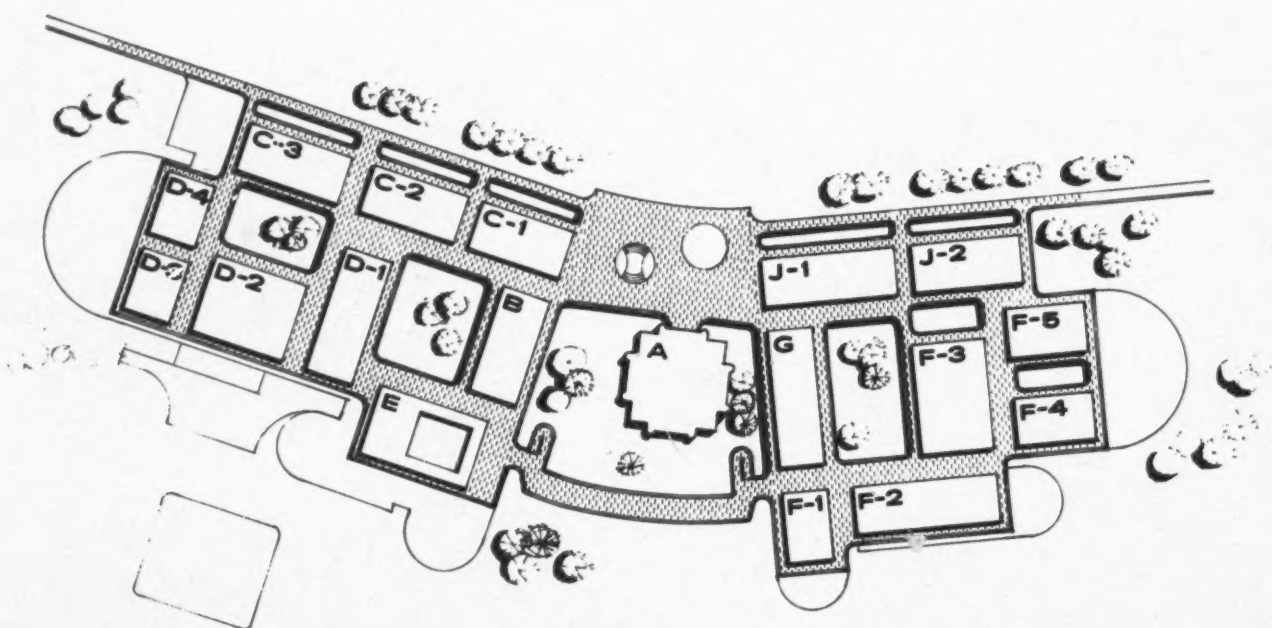
Plate 1

The programmed instructional space requirements and their relationships to each other in the total campus plan.



LOWER LEVEL

- A LIBRARY
- B ADMINIST
- C-1 SCIENCES
- C-2 SCIENCES
- C-3 SCIENCES
- D-1 ENGINEER
- TRADE -
- D-2 ENGINEER
- D-3 ENGINEER
- D-4 ENGINEER
- E STUDENT
- F-1 FINE ART
- F-2 FINE ART
- F-3 FINE ART
- F-4 FINE ART
- F-5 FINE ART
- G BUSINESS
- H SHOWER
- AUXILIA
- H-1 GYMNASI
- J-1 LANGUA
- J-2 LANGUA



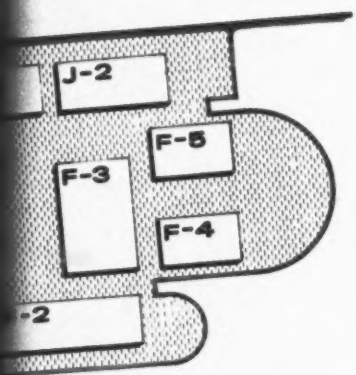
UPPER LEVEL

- A LIBRARY
- B ADMINIS
- C-1 SCIENCE
- C-2 SCIENCE
- C-3 SCIENCE
- D-1 ENGINE
- TRADE
- D-2 ENGINE
- D-3 ENGINE
- D-4 ENGINE
- E STUDEN
- F-1 FINE AR
- F-2 SOCIAL
- F-3 FINE AR
- F-4 SOCIAL
- F-5 SOCIAL
- G BUSINES
- J-1 LANGUA
- J-2 LANGUA

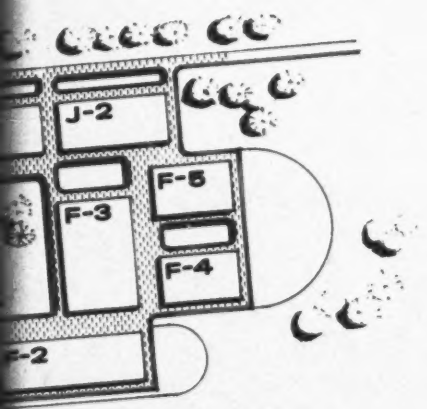


SI





- A LIBRARY
- B ADMINISTRATION
- C-1 SCIENCES
- C-2 SCIENCES
- C-3 SCIENCES
- D-1 ENGINEERING - TECHNICAL  
TRADE - UTILITY
- D-2 ENGINEERING - TECHNICAL - TRADE
- D-3 ENGINEERING - TECHNICAL - TRADE
- D-4 ENGINEERING - TECHNICAL - TRADE
- E STUDENT CENTER
- F-1 FINE ARTS
- F-2 FINE ARTS
- F-3 FINE ARTS
- F-4 FINE ARTS
- F-5 FINE ARTS
- G BUSINESS
- H SHOWER & LOCKER -  
AUXILIARY GYMNASIUM
- H-1 GYMNASIUM
- J-1 LANGUAGE
- J-2 LANGUAGE



- A LIBRARY
- B ADMINISTRATION
- C-1 SCIENCES
- C-2 SCIENCES
- C-3 SCIENCES
- D-1 ENGINEERING - TECHNICAL  
TRADE - UTILITY
- D-2 ENGINEERING - TECHNICAL - TRADE
- D-3 ENGINEERING - TECHNICAL - TRADE
- D-4 ENGINEERING - TECHNICAL - TRADE
- E STUDENT CENTER
- F-1 FINE ARTS
- F-2 SOCIAL SCIENCES
- F-3 FINE ARTS (THEATER)
- F-4 SOCIAL SCIENCES
- F-5 SOCIAL SCIENCES
- G BUSINESS
- J-1 LANGUAGE
- J-2 LANGUAGE



**5000 FTE**



# SPACE ALLOCATION

Plate 2

The fulfillment of the master planned development for the entire site, incorporating the four parcels of land. This plan illustrates the parking requirements as they would be distributed if confined to the surface of the site.







**5000 FTE**

  
**SURFACE PARKING**

Plate 3

A variation of Plate 2, except that in order to maintain additional open land spaces within the site, two-level parking structures are incorporated. This essentially provides for a similar parking requirement as the extended surface parking, but more centralizes the stationary vehicular masses.









**5000 FTE**



**PARKING STRUCTURE**

Traffic  
Circulation

The traffic access to the Campus will be predominantly from the north, both initially from Farrington Highway and ultimately, through transition from both Farrington and the proposed Interstate Highway system.

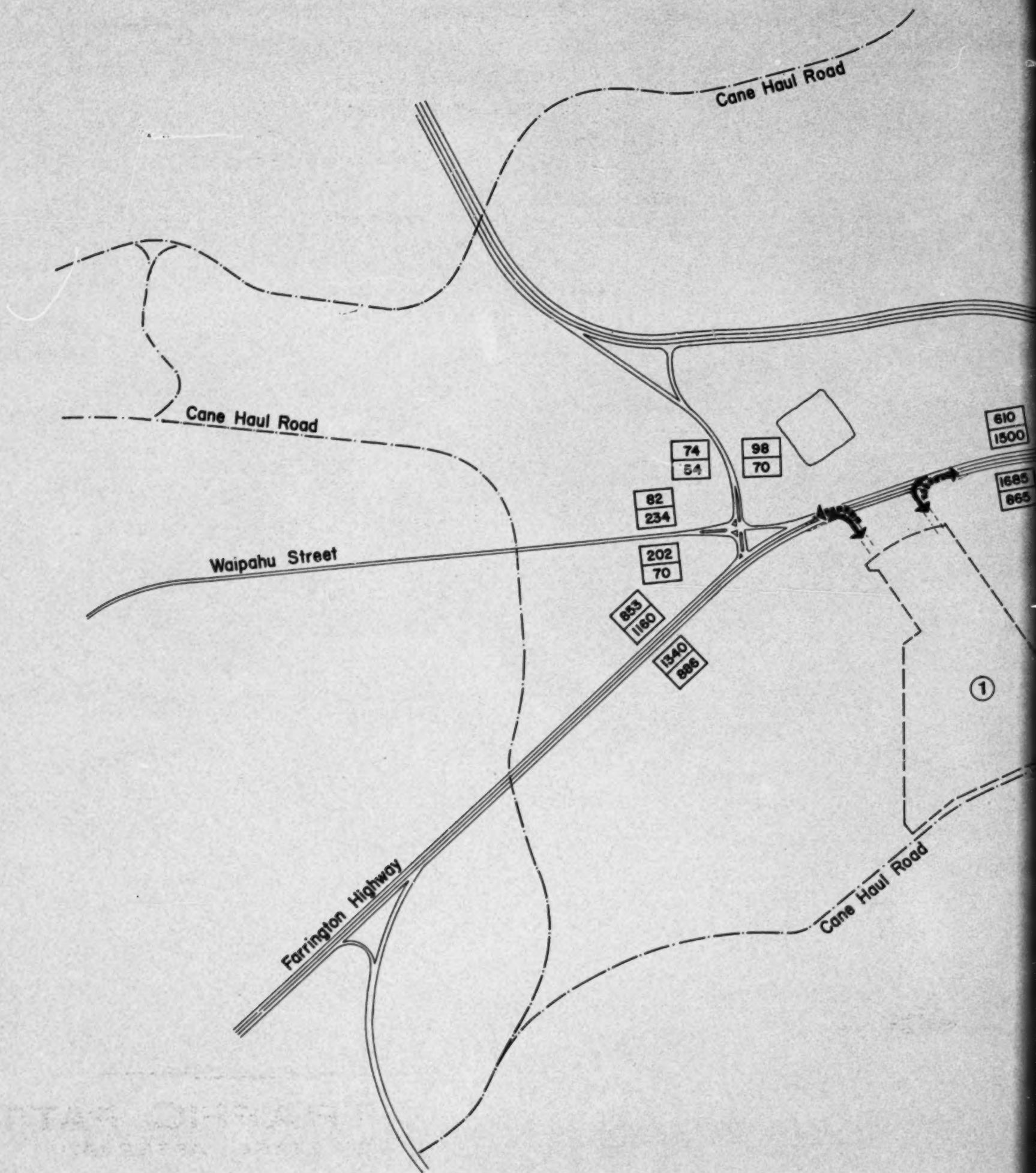
Two secondary points of access are planned at the southern extremes of the site as they become necessary in accordance with the increased needs of campus expansion.

On the following plates are shown the traffic patterns leading to the campus and the anticipated traffic generations used for planning determinations.

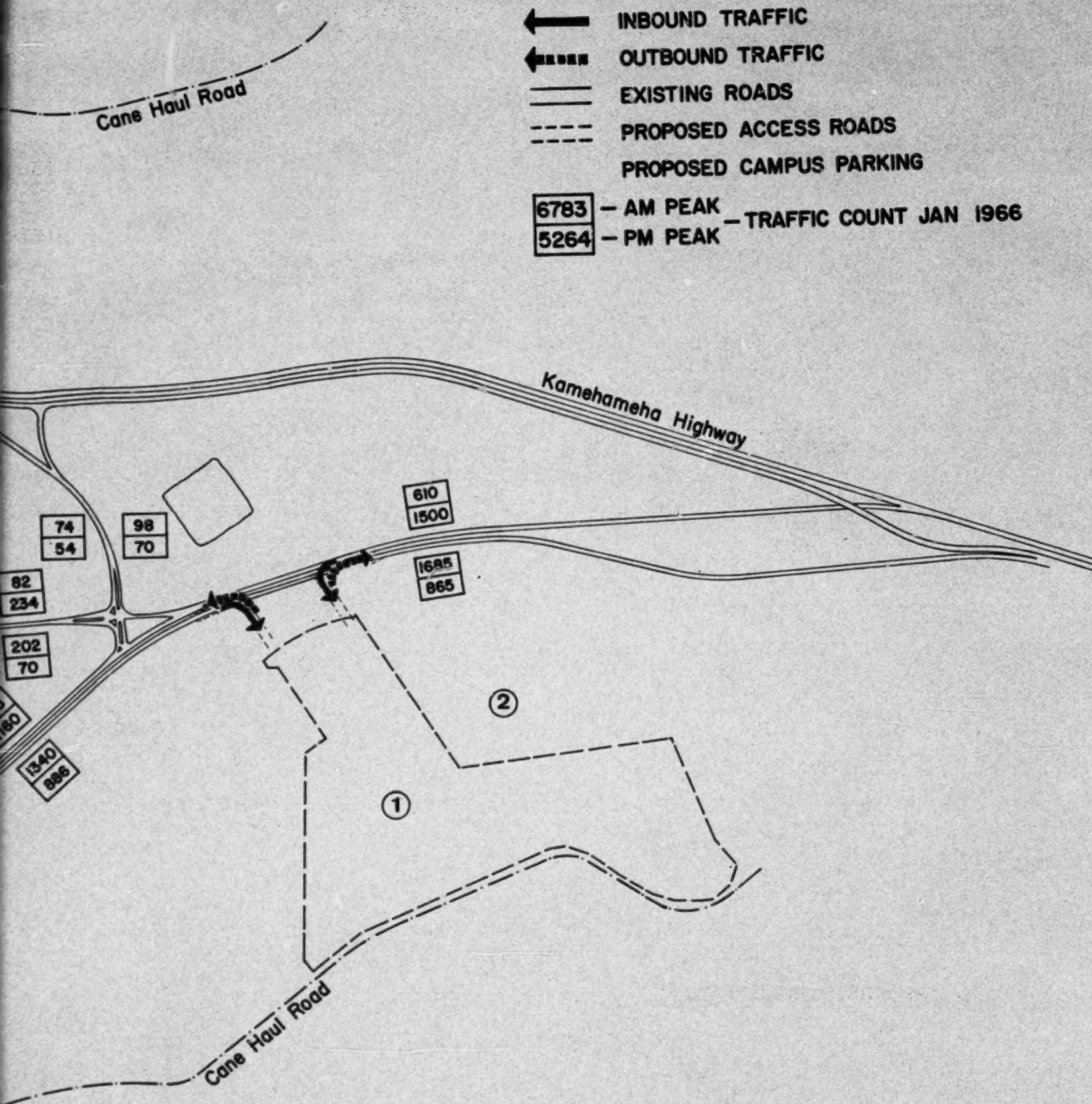
Plate 1      1st Stage Prior 1971

Plate 2      2nd Stage After 1971







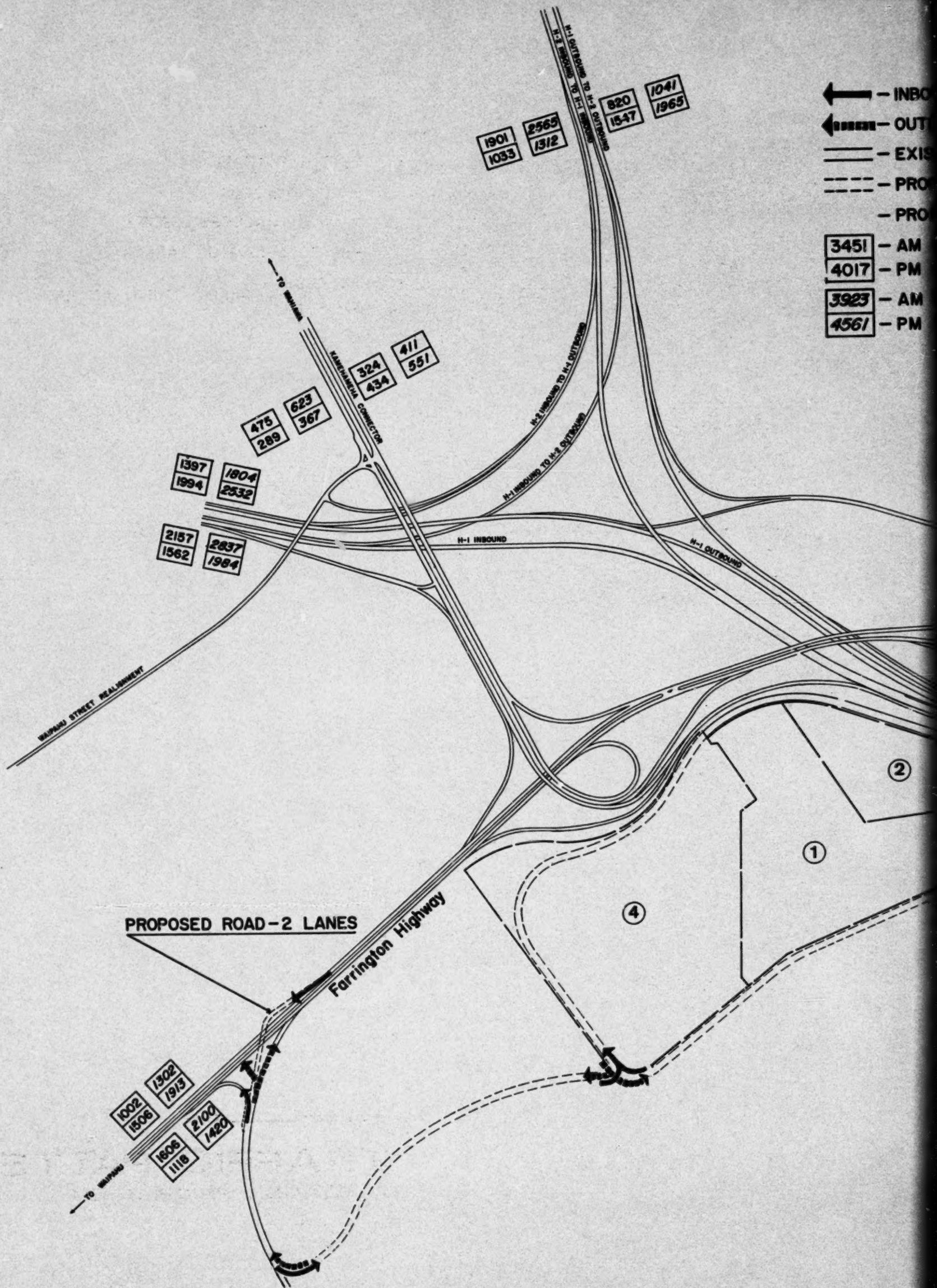


# TRAFFIC PATTERN

1ST STAGE PRIOR TO 1971

SOURCE: D.M.J.M. SURVEY

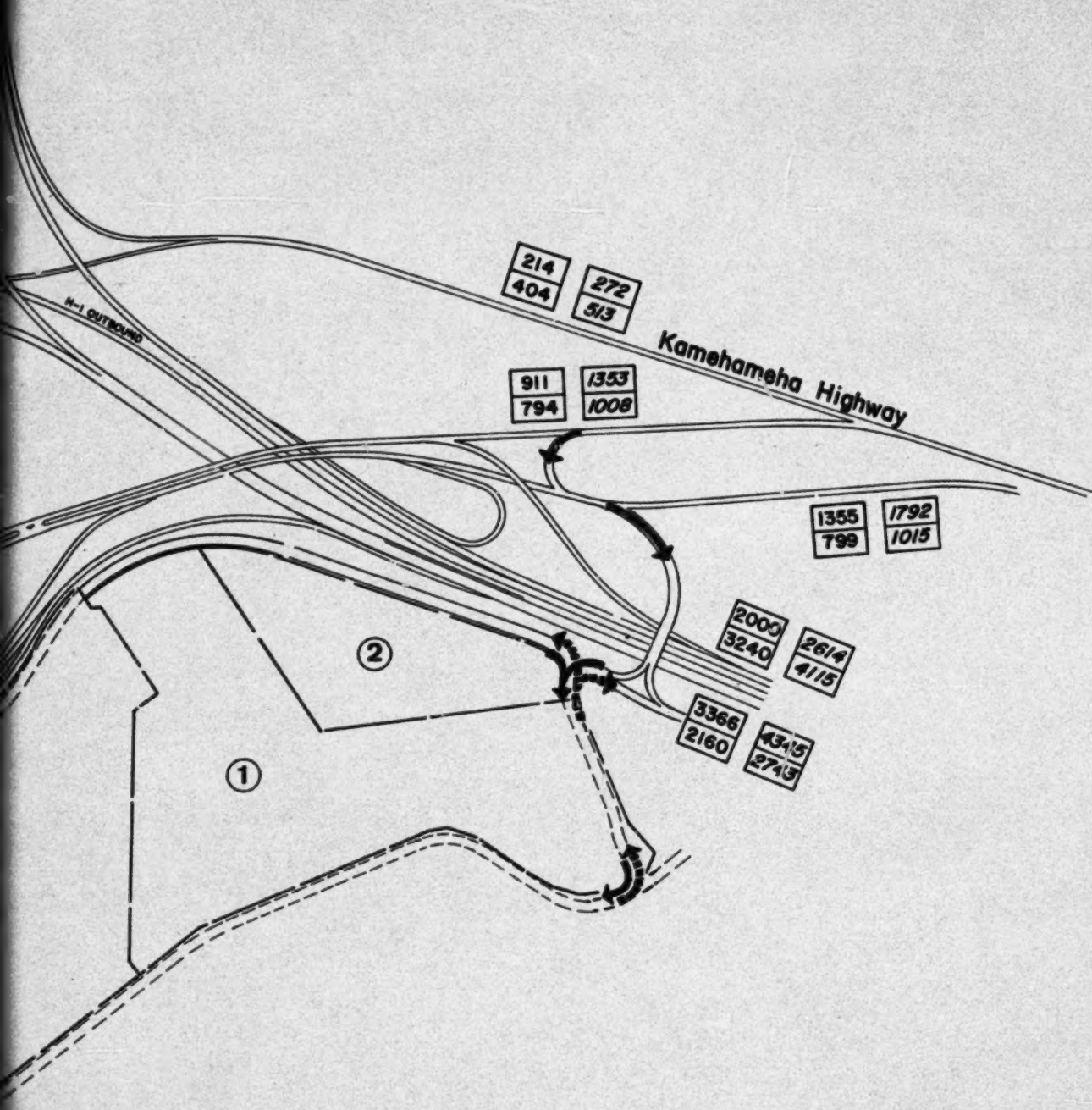






1041  
1965

- ← INBOUND TRAFFIC  
← OUTBOUND TRAFFIC  
— EXISTING ROADS (AFTER 1970)  
--- PROPOSED ROADS - 4 LANES  
— PROPOSED CAMPUS PARKING
- 3451 - AM PEAK  
4017 - PM PEAK — TRAFFIC ASSIGNMENT 1975
- 3923 - AM PEAK  
4561 - PM PEAK — TRAFFIC ASSIGNMENT 1985



# TRAFFIC PATTERN

2ND STAGE AFTER 1971



### Site Circulation and Parking

The ultimately developed plan provides for a circumferential loop surrounding the campus. This road will allow vehicular access and distribution to the various points required for penetration. Other than for parking needs, there will be no mass penetration of the site. Specific entry into the campus will be limited to service and emergency functions.

### Parking

Two parking arrangements have been proposed for the ultimate campus development -- one accommodating all parking needs on surface areas; the other utilizing parking structures.

Parking requirements planned for the college are phased in accordance with the anticipated enrollment growth and include student, staff and service, and visitor parking.

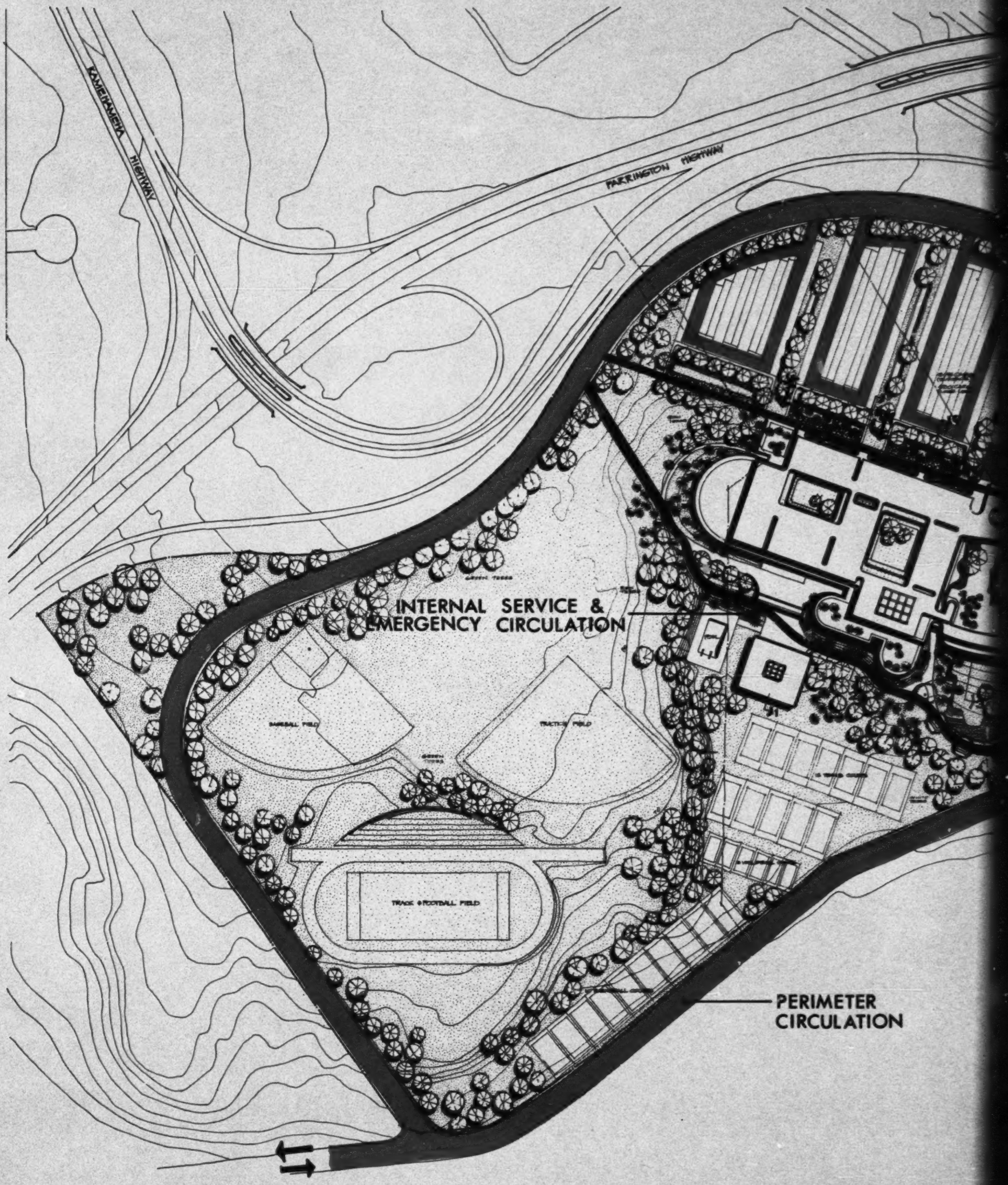
|                 |            |
|-----------------|------------|
| 2000 Enrollment | 920 cars   |
| 3500 Enrollment | 1500 cars  |
| 5000 Enrollment | 2000 cars* |

\*May be accommodated by either surface parking or by 2-level parking structure when capacity reaches this phase of development.

The following plate depicts parking, vehicular access and circulation as well as the main points for pedestrian penetration into the campus.

Emphasis is placed on maintaining positive separation between pedestrian and vehicular traffic and containing the major pedestrian movement within the walks, courts and walks of the campus proper.





INTERNAL SERVICE &  
EMERGENCY CIRCULATION

PERIMETER  
CIRCULATION

BASEBALL FIELD

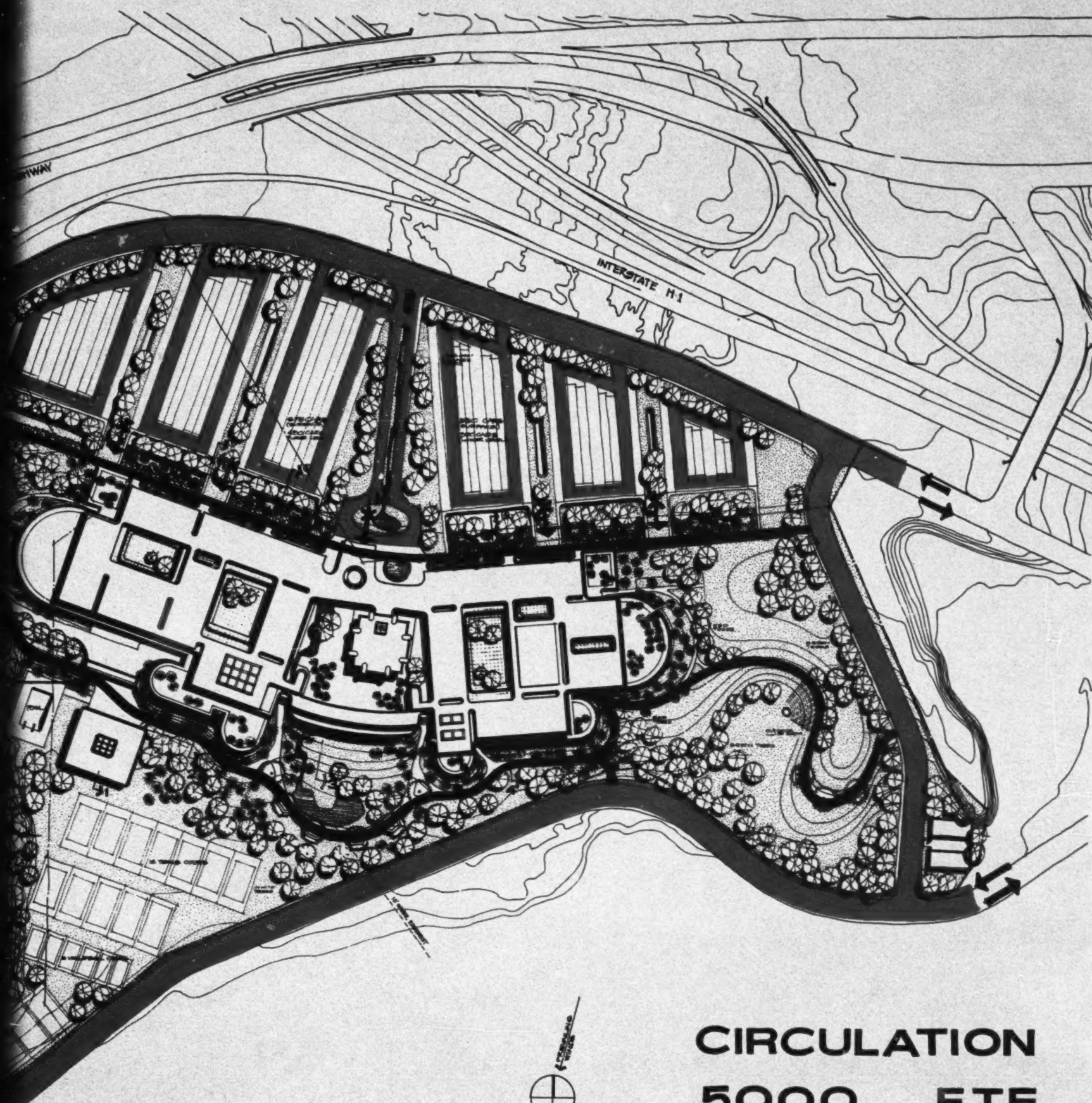
PRACTICE FIELD

TRACK & FOOTBALL FIELD

KALAMAZOO  
HIGHWAY

PARKINGTON  
HIGHWAY





PERIMETER  
CIRCULATION

ENTRANCE

CIRCULATION  
5000 FTE





### Grading

Grading and compaction will be required over the majority of the site for the ultimate development. However, it can be contained to a cut and balance operation. If only a portion of the work is done to handle the initial phase, some excess will need to be stockpiled for future development. Economy indicates that consideration be given for conducting the rough grading and compaction to the total development during the first phase of construction.

Preliminary study shows the average depth of cut is approximately fifteen feet.

### Drainage

The on-site storm system is handled easily and directly with the discharge point along the south boundary. Means of carrying the water off the site has not been firmly established, but it is anticipated that development of an open channel discharging into Pearl Harbor can be provided.

### Utilities

No utilities adequate to handle the proposed campus development now exist near the site.

Water - A 10" water main is presently being installed along Waipahu Road to a point near where it will be required to serve the campus. Campus entry will be from the north, and there will probably be a charge by the Board of Water Supply to extend the main the additional distance from the proposed termination. However, a portion of this charge may be recovered as development around the campus takes place, and others wish to connect to the line. Once reaching the site there will be no metering or connection charges. A loop system is planned to handle domestic and fire protection needs.



Gas - There is a possibility that Honolulu Gas Co. will install a main, (most likely along Farrington Highway, entering the site from the north), at no charge up to and including the meter. Timing is important, in resolving this installation, in order to have service by campus occupancy.

Sewer - The City and County Division of Sewers have plans to install a line from the newly completed pumping station east of the college property, westwardly, paralleling the existing railroad right-of-way to a point approximately coinciding with the west portion of the site. Funds for the installation of this section of sewer are budgeted presently so that construction probably will not be completed until 1970. It is recommended that discussion of schedule be held with the City and County in order to have this service available for campus occupancy. This would avoid the expense of having to provide an on-site treatment system, which would later be abandoned when connection could be provided by the City and County service.

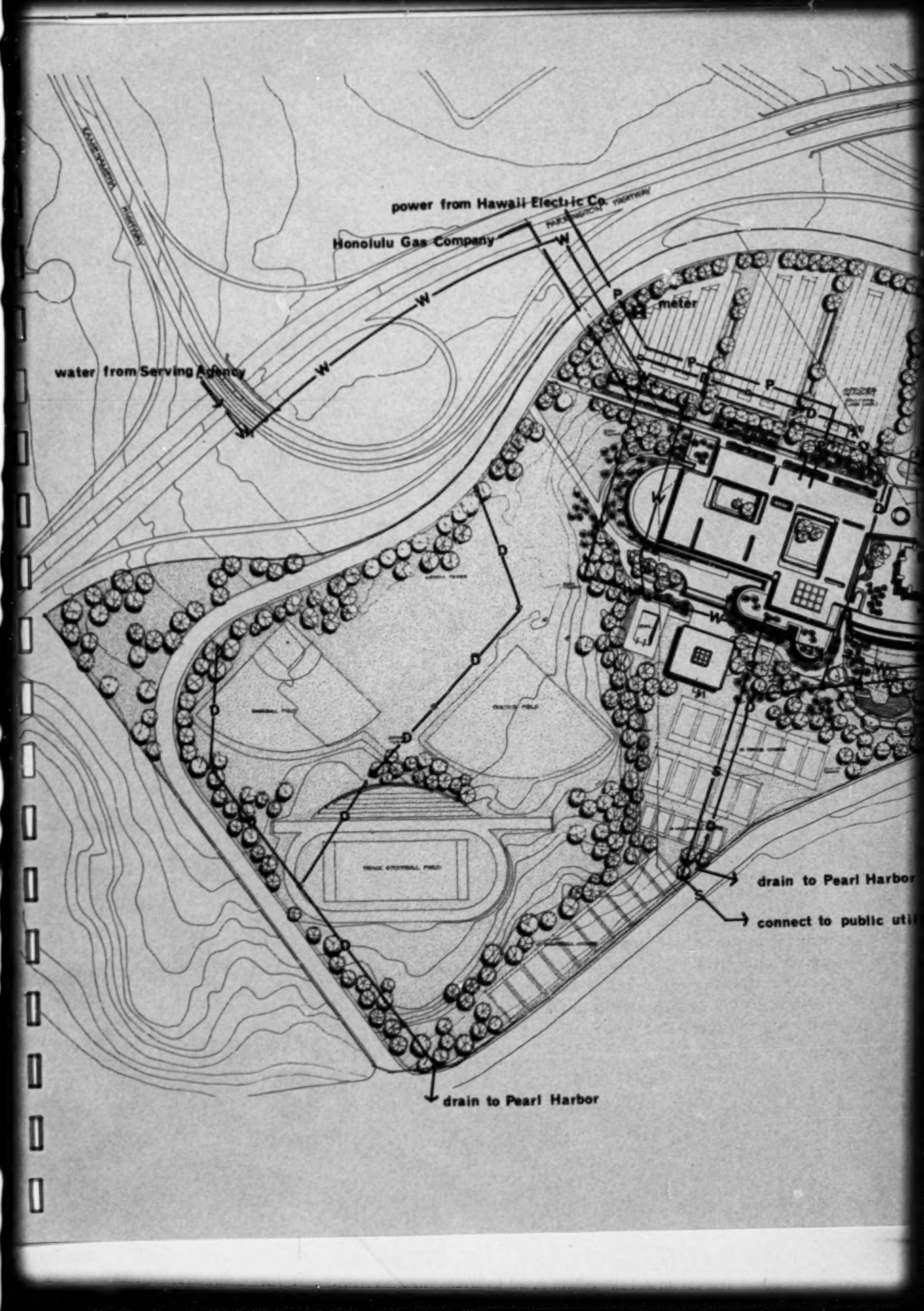
Power - Service to the site will be furnished by the Hawaiian Electric Co. at 12,470 volts, 3 phase. Entrance will be from the north property boundary. There will be no costs to the point of metering.

Telephone service is available to the site with no service charge.

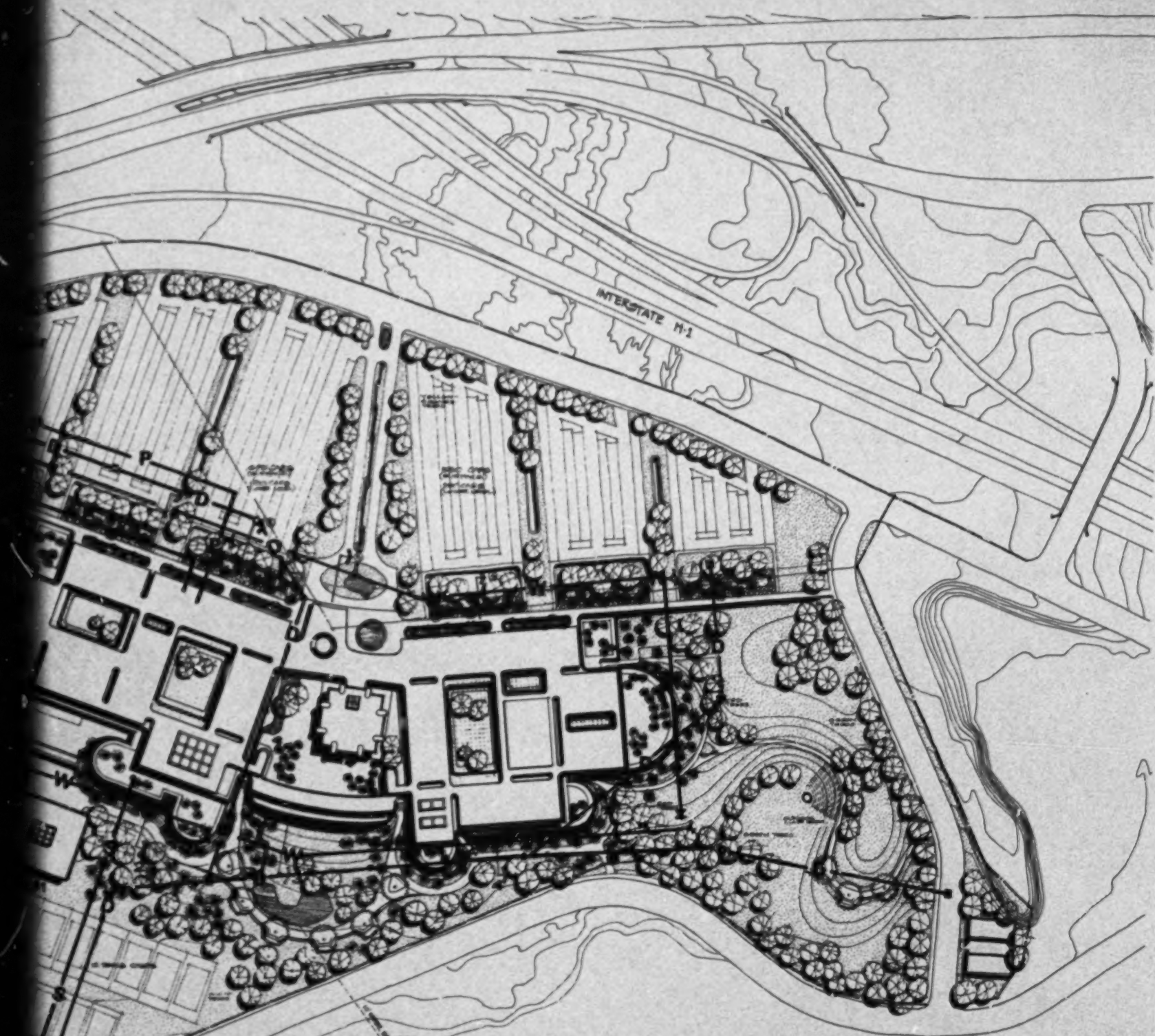
Municipal Fire Alarm service is not presently available in the area of the site. The City and County of Honolulu is preparing a Master Plan, but service does not appear available within the immediate future.

All power requirements within the site will be conducted under ground.

The utility plan proposed for the campus is diagrammatically shown on the following plate.







INTERSTATE H-1

drain to Pearl Harbor

connect to public utility

- |       |          |
|-------|----------|
| — G — | GAS      |
| — P — | POWER    |
| — D — | DRAINAGE |
| — S — | SEWER    |
| — W — | WATER    |

## UTILITIES

5000 FTE





#### E. PHASING THE PLAN

A challenge that frequently arises in implementing a planned development program is the need for phasing construction in response to the growth increase anticipated for the region. Certain requirements must be satisfied in order to maintain functional continuity through each phase of a campus program -- from inception to ultimate completion.

For each stage of development it is necessary to maintain a balanced and comprehensive educational offering.

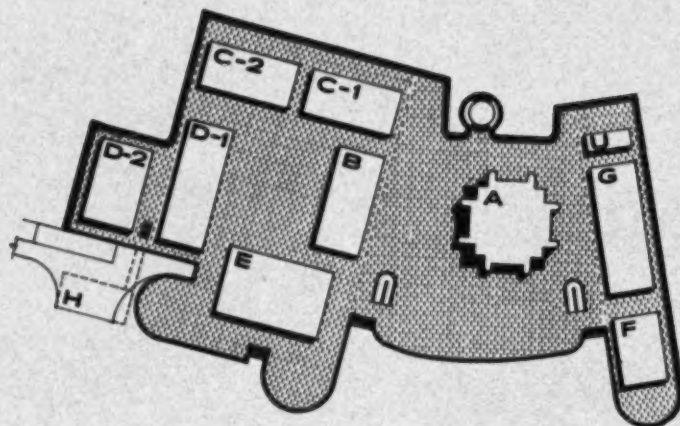
Expansion should take place outward from the initial point of campus origin, so as to cause the least disunity to academic activity.

For each stage of expansion should be considered a proportionate development of site improvement which will maintain a similar continuity as the building development.

Certain facilities, such as the library or student center, which are difficult to add to through a staged program, should be built in their entirety for the ultimate space requirements during the initial construction phase. The space not needed during the beginning of the campus may be temporarily allocated for other instructional uses. As the campus expands these temporary spaces will be phased out to their permanent quarters, thus freeing the necessary spaces for library or student center expansion.

The following plates graphically describe the procedure planned for phasing the program from the initial enrollment for 2000 students through the intermediate stage of expansion for an enrollment of 3500 students. The ultimate phase of development for 5000 students has been previously described.

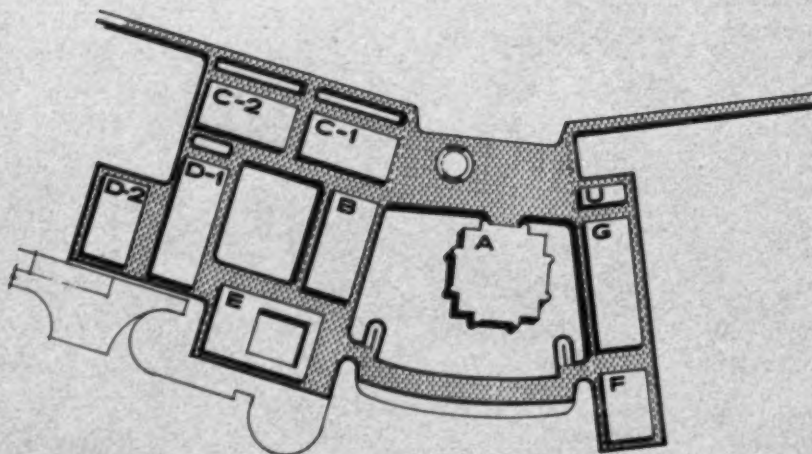




(Lower Level) 2000 FTE

- A LANGUAGE
- B ADMINISTRATION
- C-1 SCIENCES
- C-2 SCIENCES
- D-1 ENGINEERING - TECHNICAL  
TRADE - UTILITY
- D-2 ENGINEERING - TECHNICAL  
TRADE
- E STUDENT CENTER
- F FINE ARTS
- G LANGUAGE - BUSINESS
- H SHOWER & LOCKER BUILDING  
(2 LEVELS)

LOWER LEVEL



(Upper Level) 2000 FTE

- A LIBRARY (2 UPPER LEVELS)
- B SOCIAL SCIENCES
- C-1 SCIENCES
- C-2 SCIENCES
- D-1 ENGINEERING - TECHNICAL  
TRADE - UTILITY
- D-2 ENGINEERING - TECHNICAL  
TRADE
- E STUDENT CENTER
- F FINE ARTS
- G SOCIAL SCIENCES - BUSINESS
- U UTILITY BUILDING

2000 FTE

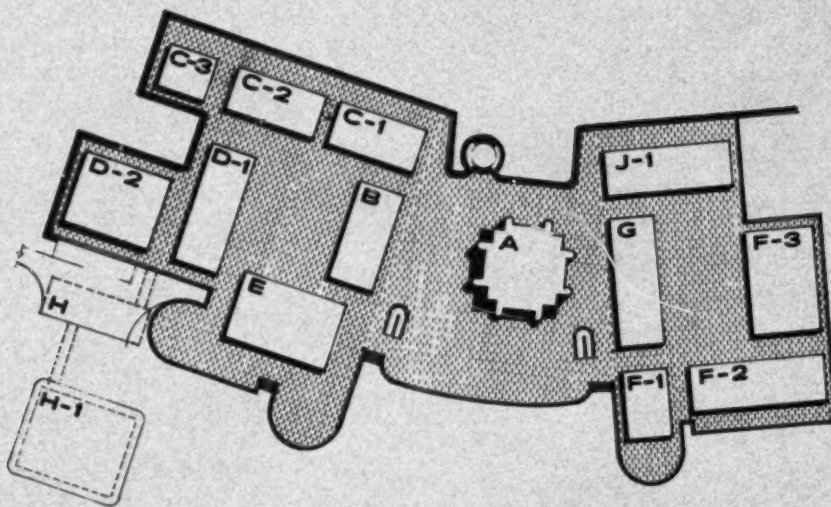
UPPER LEVEL





(Lower Level) 2000 FTE

LANGUAGE  
ADMINISTRATION  
SCIENCES  
SCIENCES  
ENGINEERING - TECHNICAL  
TRADE - UTILITY  
ENGINEERING - TECHNICAL  
TRADE  
STUDENT CENTER  
FINE ARTS  
LANGUAGE - BUSINESS  
SHOWER & LOCKER BUILDING  
(2 LEVELS)  
GYMNASIUM  
LANGUAGE



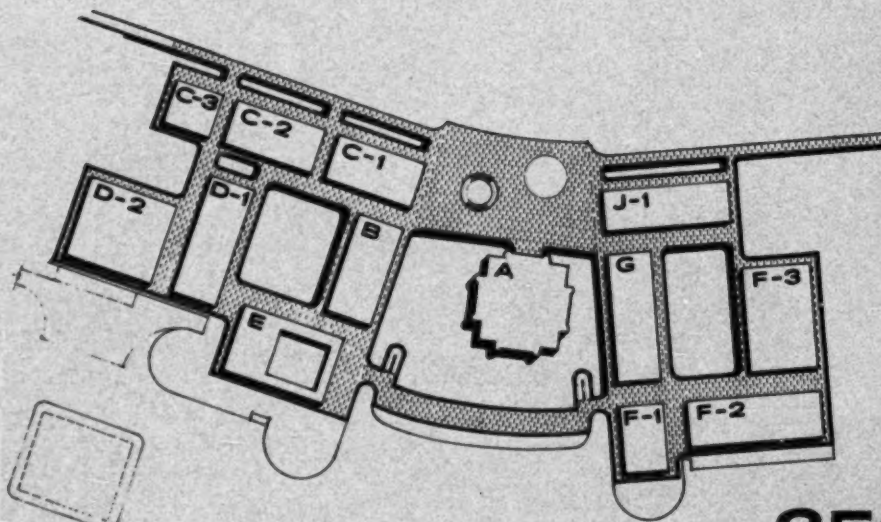
(Lower Level) 3500 FTE

A LIBRARY - LANGUAGE  
B ADMINISTRATION  
C-1 SCIENCES  
C-2 SCIENCES  
C-3 SCIENCES  
D-1 ENGINEERING - TECHNICAL  
TRADE - UTILITY  
D-2 ENGINEERING - TECHNICAL  
TRADE  
E STUDENT CENTER  
F-1 FINE ARTS  
F-2 FINE ARTS  
F-3 FINE ARTS (THEATER)  
G BUSINESS  
H SHOWER & LOCKER BUILDING  
(2 LEVELS)  
H-1 GYMNASIUM  
J-1 LANGUAGE

LOWER LEVEL

(Upper Level) 2000 FTE

A LIBRARY (2 UPPER LEVELS)  
B SOCIAL SCIENCES  
C-1 SCIENCES  
C-2 SCIENCES  
D-1 ENGINEERING - TECHNICAL  
TRADE - UTILITY  
D-2 ENGINEERING - TECHNICAL  
TRADE  
E STUDENT CENTER  
F FINE ARTS  
G SOCIAL SCIENCES - BUSINESS  
U UTILITY BUILDING



(Upper Level) 3500 FTE

A LIBRARY (2 UPPER LEVELS)  
B ADMINISTRATION -  
SOCIAL SCIENCES  
C-1 SCIENCES  
C-2 SCIENCES  
C-3 SCIENCES  
D-1 ENGINEERING - TECHNICAL  
TRADE  
D-2 ENGINEERING - TECHNICAL  
TRADE  
E STUDENT CENTER  
F-1 FINE ARTS  
F-2 SOCIAL SCIENCES  
F-3 FINE ARTS (THEATER)  
G BUSINESS  
J-1 LANGUAGE

3500 FTE

UPPER LEVEL

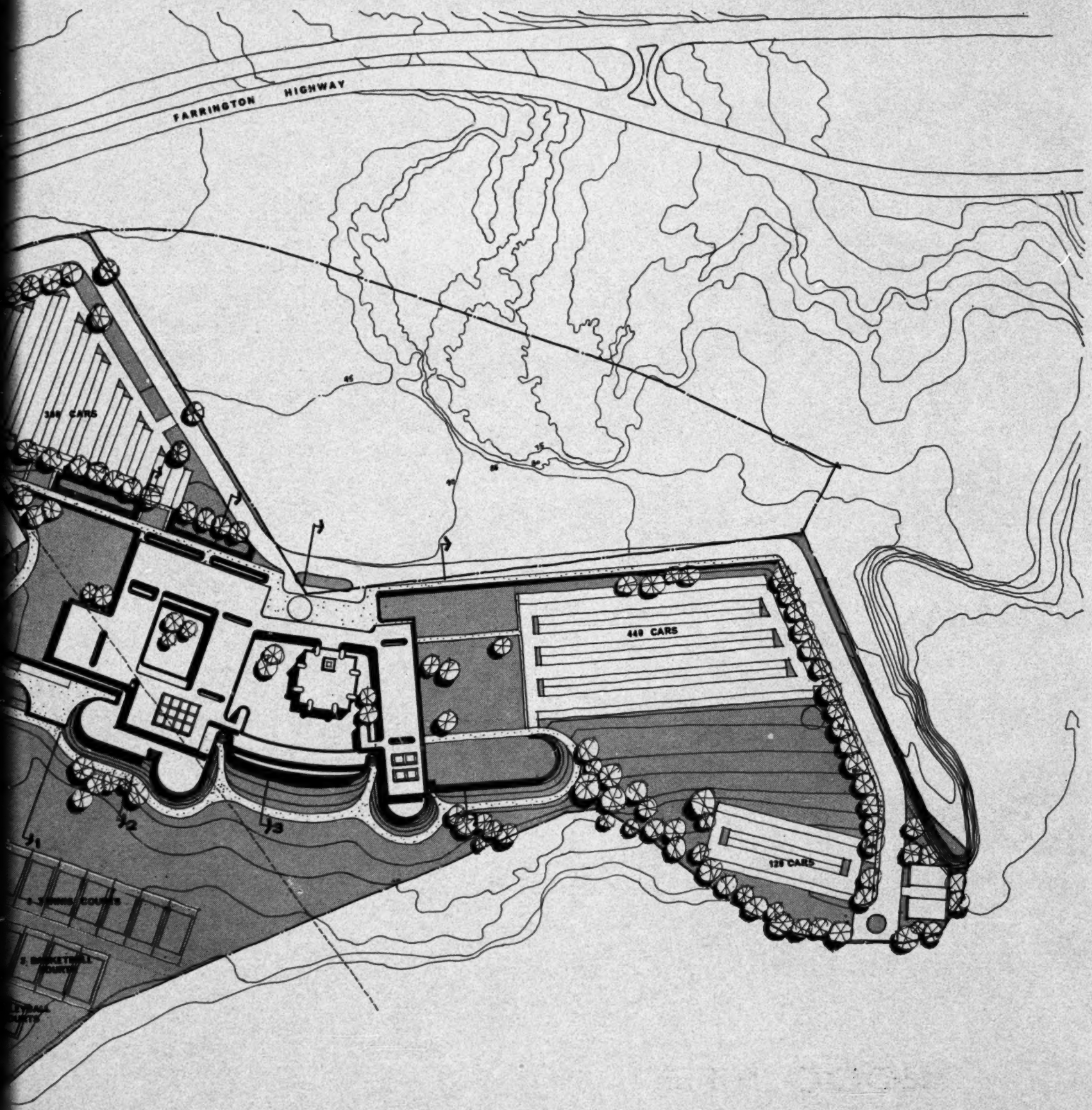
0 50 100 150 200 250 300

SPACE ALLOCATION









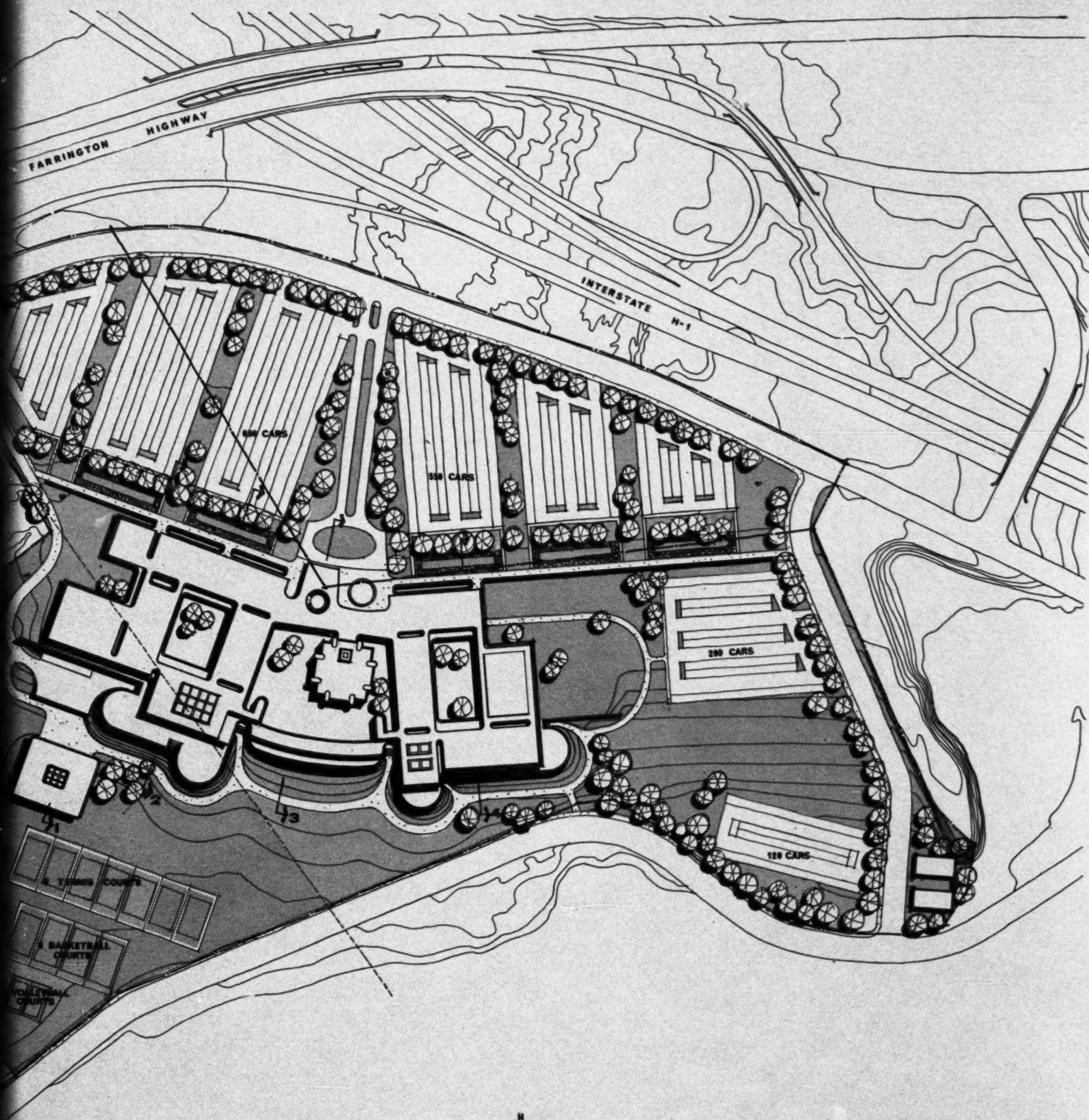
2000 FTE











3500 FTE





## F. ARCHITECTURE AND LANDSCAPE

The Architecture, previously described in concept, presents a simple yet dynamic statement of purpose. It maintains a strong sense of continuity of structure which adapts well to the economies of a repetitive system.

At first encounter, the design elements, as assembled, may present a classical formality and in one aspect this is true. In order to position the buildings to capture the advantages of the site, both aesthetically and economically, it became essential to provide a compactness in design. From this arose the need to establish a design discipline which carried a formality in arrangement. Beyond this, the awareness of formality ceases to be present.

Except for the library, rising dramatically out of the openness of the Great Court, the architecture presents a low silhouette which emphasizes a feeling of personal scale and expresses the human values that underlie the true purpose of a campus.

Deep overhangs, where required for protection from sun and weather, offer the coolness of shade and the interest from variations in shadow. Penetration from the sky, through openings in roof and deck, provide contrasting light onto the courts and walks which in themselves define their purpose and achieve a diversity that avoids monotony, an intimacy that invites a personal relationship with the campus. The pedestrian-ways, the courts, the terraces, perform the singular function of unifying the campus while preserving the natural environment and the vistas.

Certain facilities, such as classrooms and laboratories, will require control and protection from the outside. However, facilities such as the student



center, not requiring the same insulation, can be opened to become a part of the surrounding environment.

The Landscaping, as with the expression of the Architecture, is used to further the objectives of the Campus planning.

Landscape design performs the important function of giving scale and unity to the architecture, softening the buildings and bringing them into context with the setting, while, at the same time defining and giving character to open spaces. In proper balance, site and building will be allowed a unity of purpose.

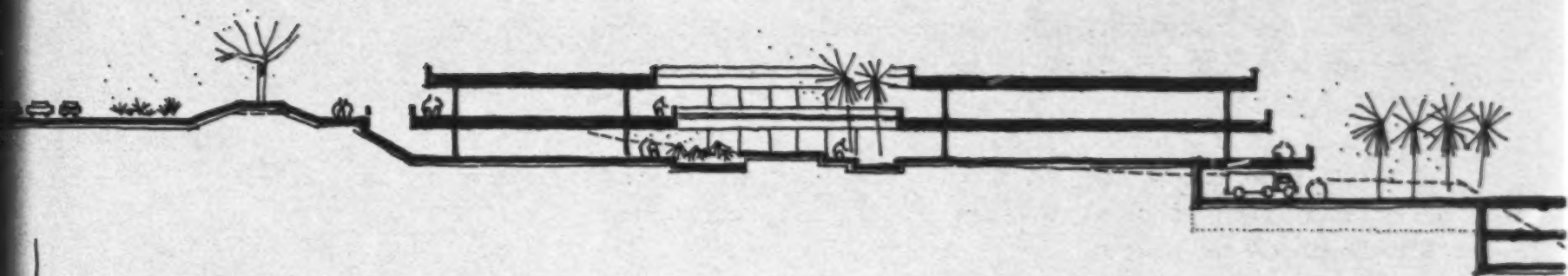
On the following plates, as well as the front color-plate of the campus, are illustrated the architectural character of the buildings as shown in section, and the landscape treatment of the outdoor spaces.

The section drawings provide a clear picture of the scale and unity of the architecture and the manner by which the site is used to gain the optimum environmental advantage.

The Court landscape planning shows the inner campus areas and the suggested manner by which each is treated individually in anticipation of the activity envisioned in the spaces.

A suggested planting list is provided as a guide in establishing the character of the landscaping.





ELEVATION 30.0

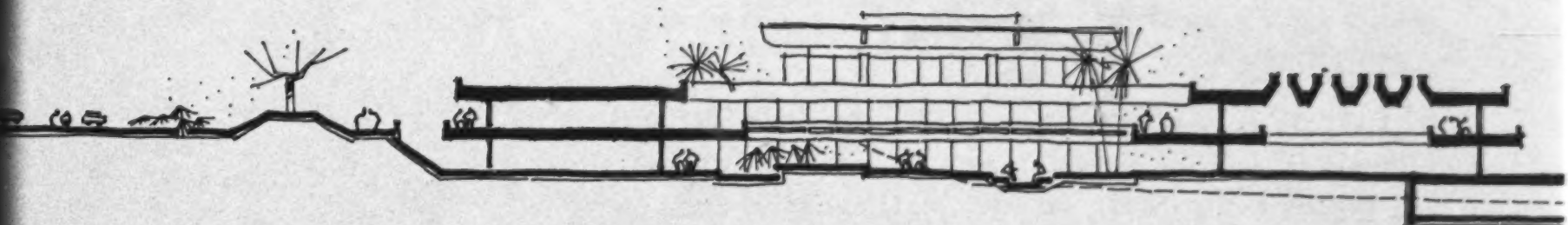
PARKING

SCIENCE

ENG. & TECH.

SERVICE

SHOWI



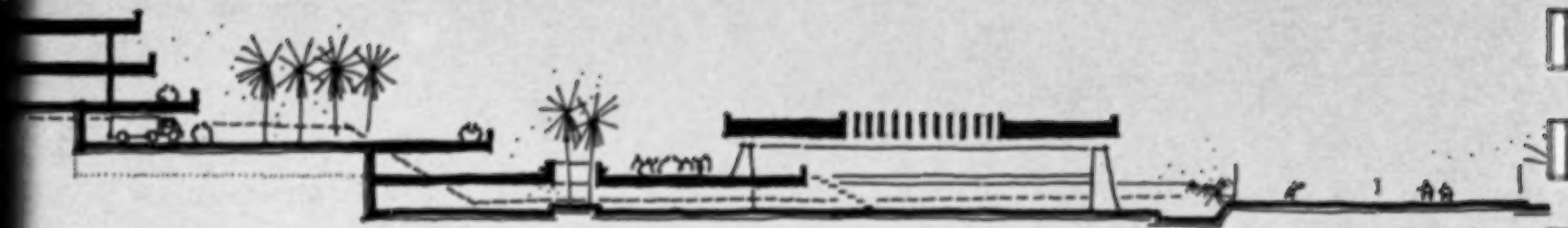
PARKING

SCIENCE

ADMINISTRATION

STUDENT CENTER

ELEVATION 30.0

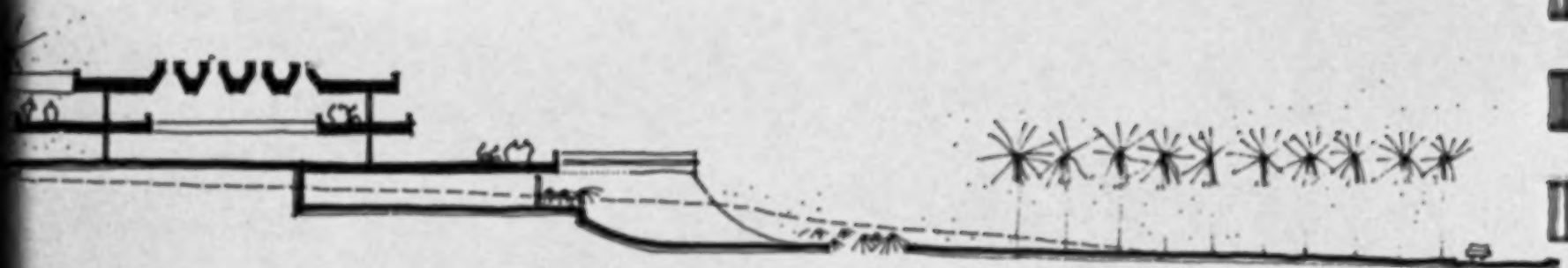


SERVICE

SHOWER & LOCKER

GYMNASIUM

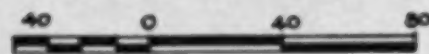
## SECTION 1



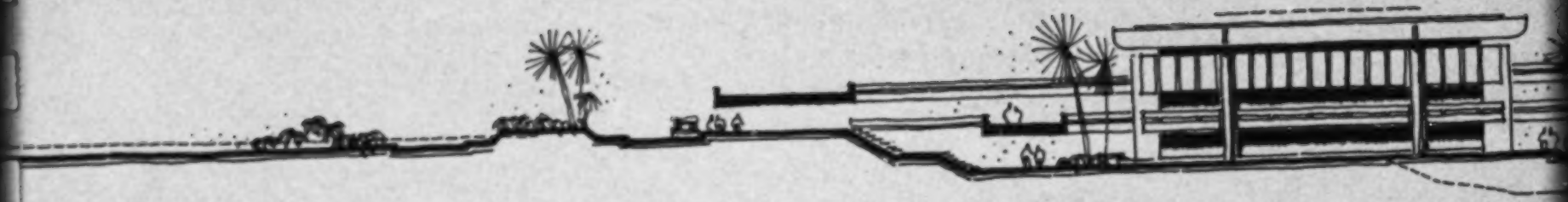
STUDENT CENTER

PROPERTY LINE →

## SECTION 2







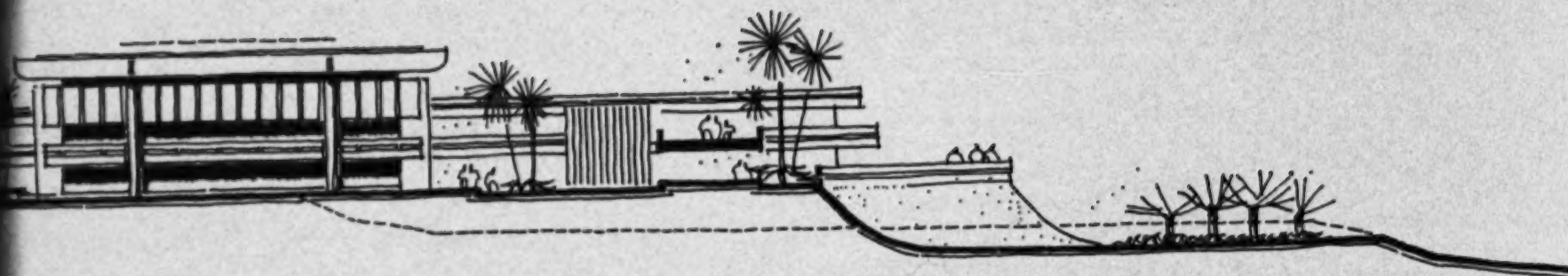
ELEVATION 30.0

LIBRARY

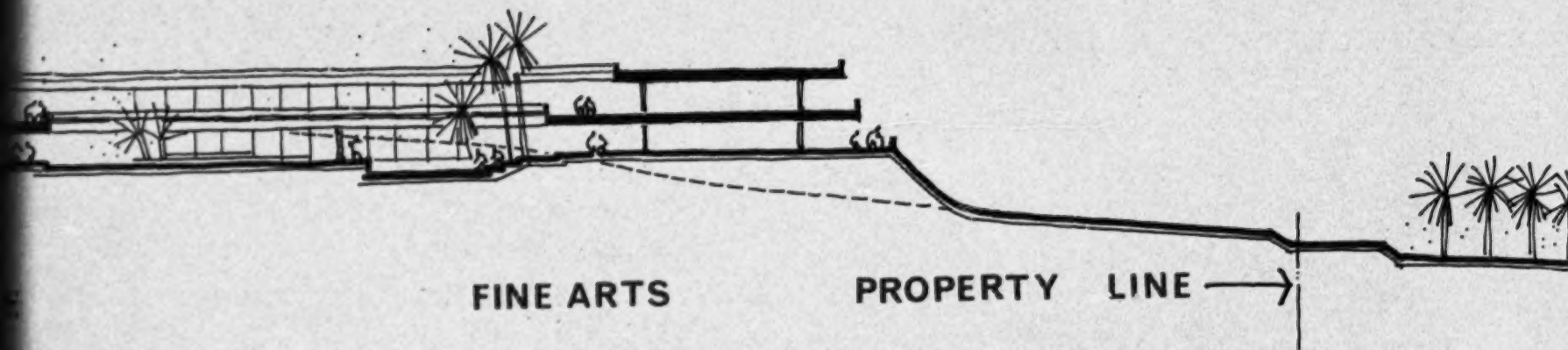


LANGUAGE

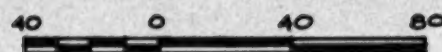
ELEVATION 30.0



### SECTION 3



### SECTION 4





## PRELIMINARY PLANT LIST FOR LEEWARD OAHU COMMUNITY COLLEGE

### Green Trees

*Ficus* sp.  
*Samanea saman*  
*Eucalyptus citriodora*  
*Araucaria exelsa*  
*Pithecellobium dulce*  
*Brassia actinophylla*  
*Persea americana*  
*Litchi chinensis*  
*Hibiscus tiliaceus*  
*Coccolobis uvifera*  
*Messerschmidia argentea*  
*Melaleuca leucadendron*  
*Barringtonia asiatica*  
*Clusia rosea*  
*Casuarina equisetifolia*  
*Enterolobium cyclocarpum*  
*Chrysophyllum cainito*  
*Macadamia ternifolia*  
*Citrus* sp.  
*Psidium cattleianum*

### Red Trees

*Delonix regia*  
*Spathodea campanulata*  
*Erythrina* sp.  
*Terminalia catappa*  
*Plumeria rubra*  
*Cordia sebestena*

### Pink Trees

*Tabebuia pentaphylla*  
*Cassia javanica*  
*Plumeria* sp.  
*Bauhinia monandra*

### Yellow-Orange Trees

*Cassia fistula*  
*Cassia fistula javanica*  
*Peltophorum inerme*  
*Thespesia populnea*  
*Plumeria*  
*Tabebuia donnell-smithii*  
*Acacia confusa*

### Blue-Lavender Trees

*Solanum macranthum*  
*Lignum vitae*  
*Bauhinia variegata*

### White Trees

*Albizzia lebbbeck*  
*Michelia alba*  
*Plumeria acuminata*  
*Plumeria obtusa*  
*Bauhinia binata*

### Palms and Palm-like Plants

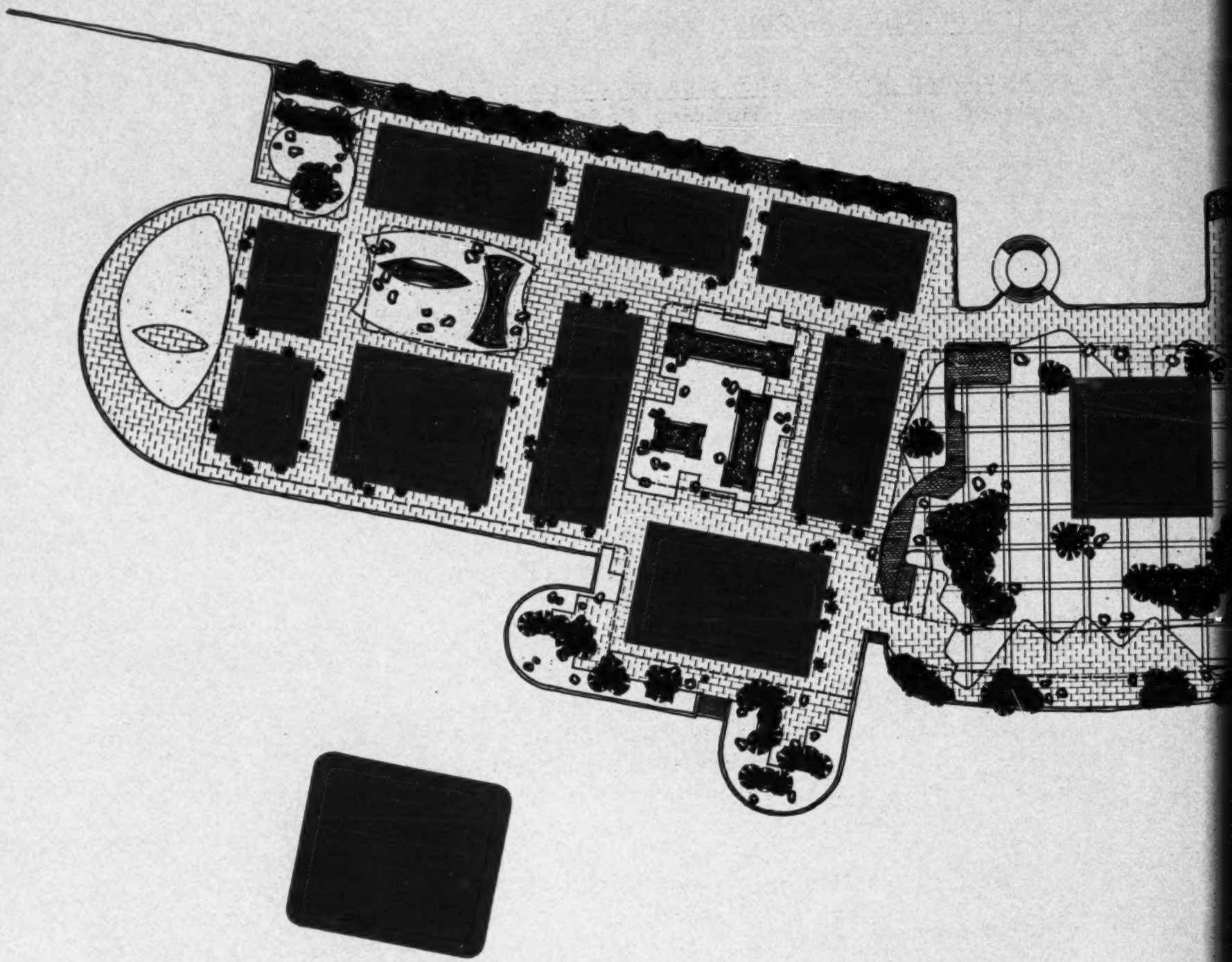
*Cocos nucifera*  
*Roystonea elata*  
*Caryota urens*  
*Chrysalidocarpus tutescens*  
*Livistonia chinensis*  
*Pandanus odoratissimus*

### Shrubs

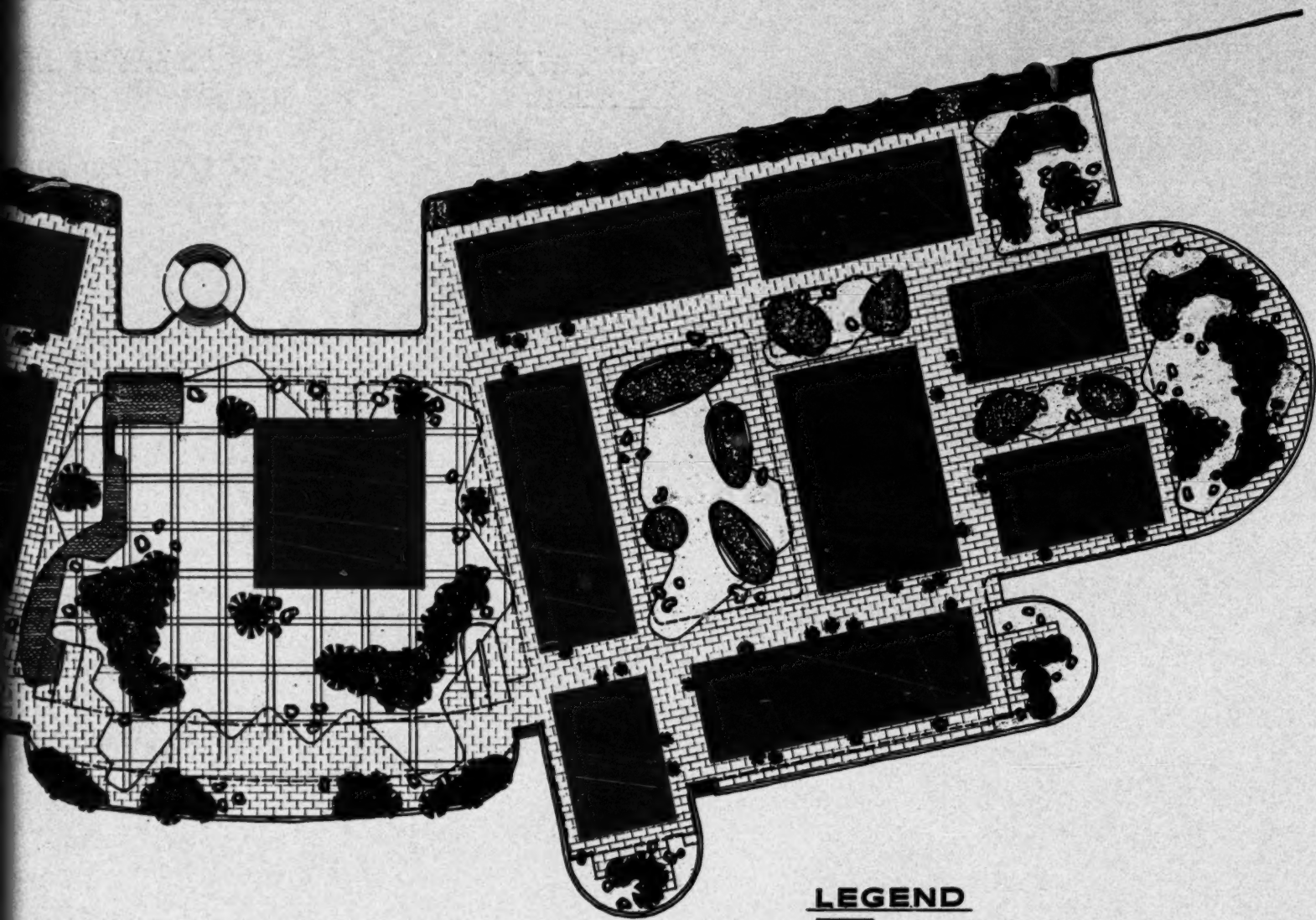
Red  
Pink  
Yellow-Orange  
Blue-Lavender-Purple  
White-Cream  
Croton  
*Acalypha* et al.  
*Hibiscus*  
Night-blooming cereus  
Jade trees  
*Sansevieria*

### Vines

*Bougainvillea* in var.  
*Quisqualis indica*  
*Pandorea jasminoides*  
*Allamanda*  
*Solandra*  
*Lonicera hildebrandiana*  
*Bignonia venusta*  
*Convolvulus* sp.  
*Petrea volubilis*  
*Thunbergia laurifolia*  
*Beaumontia jerdoniana*  
*Ipomoea horsefalliae*







# **LEGEND**

-  BUILDING
-  CONCRETE
-  ASPHALT
-  3' WALL & SEAT
-  WATER
-  COCOS PALMS
-  GROUND COVER
-  ROCKS
-  PLANTED POTS



## **COURT LANDSCAPING**



## G. OUTLINE SPECIFICATIONS

### Construction Program

#### 1. Occupancy groups and type of construction. (Based on "Uniform Building Code" Edition)

"C" occupancy -- all instructional spaces except spaces used for assembly.

"B-2" occupancy -- all assembly spaces.

"E" and "F" occupancy -- service and warehouse spaces.

Type I Construction -- all instruction spaces and all assembly spaces.

Type IV Construction -- all service and warehouse spaces.

#### 2. Building Construction

##### a. Structural System

- (1) General -- reinforced concrete skeleton, modular in two directions, with provisions for expansion at all perimeter edges. No interior bearing partitions.
- (2) Foundation -- reinforced concrete.
- (3) Floor on Grade -- reinforced concrete over waterproofing membrane.
- (4) Floors above 1st Floor and Roof -- reinforced concrete waffle slab.
- (5) Walls -- Concrete columns.
- (6) Stairs & Ramps -- reinforced concrete.



b. Building Exterior

- (1) General -- All wall and window wall elements shall be based on the structural module and shall be removable or inter-changeable where feasible.
- (2) Roofing -- 5 ply composition roof with crushed rock.
- (3) Walls -- prefabricated incombustible wall panels with textured surfaces.
- (4) Window Walls -- Aluminum, anodized, with integrally colored, insulated spandrel panels. Glazed with low-transmission glass.
- (5) Decks, Exterior Stairs, Ramps and Balconies -- Monolithic, flexible, neoprene composition traffic surface, integrally colored with elastic latex membrane.
- (6) Balustrades -- prefabricated concrete with textured, molded surfaces.
- (7) Soffits -- concrete structure exposed.
- (8) Doors -- Hollow metal doors, painted. Narrow style aluminum doors with safety glazing.

c. Building Interiors

All Academic areas shall be equipped with an integrated modular ceiling system and a modular relocatable partition system to accommodate flexibility.



- (1) Floor -- Vinyl asbestos tile and acid resistant vinyl in special use areas. Carpet in Academic classrooms, Library, Student Center and Theater.

Ceramic tile in wet areas and Food Preparation rooms.

Concrete with hardener in Industrial Arts rooms, Storage rooms and Mechanical rooms.

- (2) Base -- rubber, ceramic tile and concrete.
- (3) Wainscot -- hardwood in heavy use areas, ceramic tile in wet areas.
- (4) Wall & Partition -- prefabricated concrete walls painted. Steel stud walls plastered. Metal relocatable partitions factory finished.
- (5) Ceiling -- Integrated suspended acoustical ceilings, plaster ceilings and exposed structure.
- (6) Doors -- Solid core, wood, natural finish and paint finish.

Folding partitions, solid panel partitions, manually and electrically operated. Folding partitions in Academic areas shall be equipped with an independent support system to accommodate relocation.

- (7) Toilet Partitions - metal, factory finished.



- (8) Cabinets -- prefinished, factory-made, where feasible.
- (9) Equipment -- Locations: Science, Library, Fine Arts, and Applied Arts -- manufactured items to meet specific requirements.
- (10) Chalk and tackboards -- sliding chalkboards, fixed chalkboards, and modular chalkboard on mounting system by reputable manufacturer.
- (11) Light Control -- vertical blinds shall be vinyl fabric. Curtains and drapes shall be fiberglass.
- (12) Hardware -- Institutional quality, master-keyed.
- (13) Painting -- paint shall be manufacturer's first quality material, applied as required to provide durability and a minimum of maintenance.

## Mechanical Services

### 1. Refrigerated Air Conditioning

Scope -- All Academic spaces.

System - Central water chilling plant with cooling tower. Two pipe system to chilled water pumps in individual buildings.

Fan coil units with insulated supply and return air ducts in furred area above first floor.

Science Laboratories shall be supplied with 100% fresh air.



2. Mechanical Ventilation

Scope -- All spaces not equipped with air conditioning.

System -- Mechanical ventilation system with blower units and support air ducts for 100% fresh air.

3. Plumbing

- a. Cold Water -- distribution in furred space above first floor.
- b. Hot water -- generators located in individual buildings.
- c. Distilled Water -- central still with distribution to Science stations.
- d. Gas -- to Science stations.
- e. Compressed Air -- To Science stations and Applied Arts Facilities.
- f. Vacuum -- Central pump with lines to Science Stations.
- g. Waste -- special provision for waste from Science stations.
- h. Roof Drainage -- deck drains connected to storm drain system.
- i. Fire Protection -- automatic sprinkler system in hazardous spaces such as Storage rooms, Custodian rooms, Mechanical rooms.  
Wet standpipes for all buildings.
- j. Fixtures -- Institutional quality.



## Electrical Services

### 1. Lighting

- a. Fluorescent, in integrated ceiling system. Minimum 75 foot candles at task level of all working areas.
- b. Incandescent, in special areas not used as teaching stations.

### 2. Power

- a. 12 KV, 3 phase to sub-stations within building complex.
- b. 110 volt in all general areas. Special voltage for Science and Applied Arts.

### 3. Communications

- a. Private dial telephone system to all teaching and work stations.
- b. Public telephones to all Administration areas.
- c. Pay phones for private use at strategic locations.

### 4. Signal & Sound Systems

- a. Fire alarm system, covering complete facility.
- b. Corrective clock system throughout campus. (Controls for both above systems shall be located in the Administration Building.)
- c. All utility control functions shall originate from the Master Clock.

### 5. Public Address Facilities

At student Center, Theater, Gymnasium, large Lecture Halls and Assembly Courts.

## H. COST ESTIMATES

The total estimated construction cost of the project for the three increments of development to an FTE of 5,000 is approximately \$17,700,000, based on today's price index.

The initial program for an enrollment of 2000 students has been estimated for a current period of construction. It is unrealistic, at the present level of planning, to assume a probable cost trend for construction. The budget estimates, which have been set down for an incremental basis of development, present today's market for the industry.

In the estimated costs for the ultimate development of the campus, there has been no amount allowed for incorporation of parking structures. It is for the final phase, planned to accommodate 5000 students, that parking structures may be decided for the campus.



## PROJECT ESTIMATE

Enrollment 2000 FTE

### A. CONSTRUCTION

|    |                               |           |             |
|----|-------------------------------|-----------|-------------|
| 1. | <u>Site Development</u>       |           | \$1,360,000 |
|    | Clearing and Grading          | \$220,000 |             |
|    | Drainage                      | 140,000   |             |
|    | Utilities                     | 250,000   |             |
|    | Finish Improvements           | 750,000   |             |
| 2. | <u>Buildings</u>              |           | 4,740,000   |
|    | <u>Sub-Total Construction</u> |           | 6,100,000   |

### B. CONTINGENCY

735,000

### C. RELATED COSTS

|                          |         |
|--------------------------|---------|
| Fees, Plans, and Surveys | 400,000 |
| Furniture and Equipment  | 365,000 |

#### Sub-Total Related Costs

765,000

### TOTAL PROJECT BUDGET

\$7,600,000

## PROJECT ESTIMATE

Enrollment 3500 FTE

### A. CONSTRUCTION

1. Site Development \$ 785,000

|                      |           |
|----------------------|-----------|
| Clearing and Grading | \$165,000 |
| Drainage             | 40,000    |
| Utilities            | 20,000    |
| Finish Improvements  | 560,000   |

2. Buildings 3,085,000

Sub-Total Construction 3,870,000

B. CONTINGENCY 387,000

### C. RELATED COSTS

|                         |         |
|-------------------------|---------|
| Fees and Plans          | 248,000 |
| Furniture and Equipment | 370,000 |

Sub-Total Related Costs 618,000

TOTAL PROJECT BUDGET \$4,875,000



## PROJECT ESTIMATE

Enrollment 5000 FTE

### A. CONSTRUCTION

1. Site Development \$ 590,000

|                      |           |
|----------------------|-----------|
| Clearing and Grading | \$130,000 |
| Drainage             | 35,000    |
| Utilities            | 15,000    |
| Finish Improvements  | 410,000   |

2. Buildings 3,560,000

Sub-Total Construction 4,150,000

B. CONTINGENCY 415,000

### C. RELATED COSTS

|                         |         |
|-------------------------|---------|
| Fees and Plans          | 250,000 |
| Furniture and Equipment | 410,000 |

Sub-Total Related Costs 660,000

TOTAL PROJECT BUDGET \$5,225,000

## SUMMARY OF PROJECT COSTS

Increment I 2000 FTE \$ 7,600,000

Increment II 3500 FTE 4,875,000

Increment III 5000 FTE 5,225,000

Total Long Range  
Development Cost \$17,700,000

DANIEL, MANN, JOHNSON, & MENDENHALL  
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